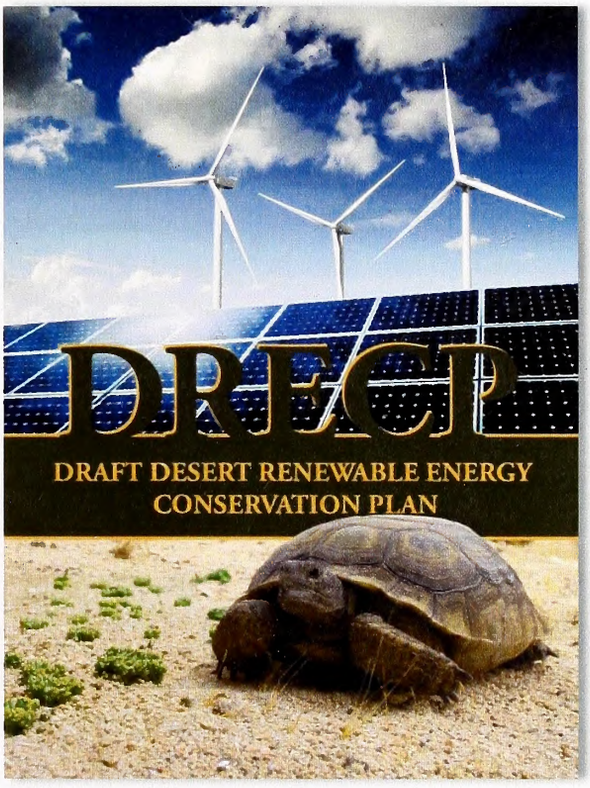
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DRAFT

Desert Renewable Energy Conservation Plan (DRECP) and Environmental Impact Report/Environmental Impact Statement

Volume IV: Environmental Consequences/Effects Analysis

Part 2 of 3: Chapters IV.7 through IV.9



Prepared by:

California Energy Commission

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IV.7 BIOLOGICAL RESOURCES

This chapter provides the analysis of environmental impacts for biological resources for the No Action Alternative, Preferred Alternative, and other action alternatives in the Desert Renewable Energy Conservation Plan (DRECP or Plan). The chapter is broadly organized according to the following major sections:

- IV.7.1 Approach to the Impact Analysis
- IV.7.2 Typical Impacts Common to All Action Alternatives
  - Impacts of Renewable Energy and Transmission
  - Impacts of the Reserve Design
  - Impacts of BLM Land Use Plan Decisions
  - Impacts of Natural Community Conservation Plan
  - Impact of General Conservation Plan
- IV.7.3 Impact Analysis by Alternative (No Action, Preferred, and Alternative 1–4)

In Section IV.7.3, the impacts of each of the action alternatives are analyzed according to the following subsections:

- Plan-Wide Impacts of Implementing the DRECP
- Impacts of DRECP Land Use Plan Amendment (LUPA) on BLM Land
- Impacts of Natural Community Conservation Plan (NCCP)
- Impacts of General Conservation Plan (GCP)
- Impacts Outside the Plan Area

Within these impact subsections, the impacts from renewable energy and transmission development and the impacts of the reserve design are analyzed. The analysis is organized according to biological resources impact statements (BR-1, BR-2, etc.) addressing the range of biological resources impacts. Following these analyses, CEQA significance determinations and an inter-alternative impact comparison are provided.[1]

[1] Rounding of data was applied to raw values to avoid false precision when presenting calculated values. However, in presenting rounded values there were tradeoffs. Numerical data presented and analyzed in this volume comes from a variety of different sources with varying levels of precision in the data. For presentation purposes, the following general rounding rules were applied: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10. Each value, including the totals and sub-totals, was independently rounded directly from the underlying source data. However, because totals and sub-totals were independently rounded they may not be the sum of the other constituent lower level table values.

IV.7.1 Approach to Impact Analysis

This section describes the methods for analyzing the biological resources impacts of siting, construction, decommissioning, and operations of Covered Activities for the DRECP. Additionally, the CEQA standards of significance are provided, which were used in making CEQA significance determinations.

IV.7.1.1 General Methods

IV.7.1.1.1 Siting, Construction, and Decommissioning Impacts

The biological resources impacts of siting, construction, and decommissioning of renewable energy and transmission projects were analyzed using the methods described below. Siting and construction impacts include the long-term loss of species or their habitat, removal or alteration of natural communities, or modification or disruption of ecological processes resulting from siting and construction of renewable energy and transmission projects. These impacts often result from ground disturbance activities associated with the construction of these projects. Additionally, short-term impacts to biological resources result from construction activities or decommissioning activities during these phases of projects.

For the purpose of quantifying the siting, construction, and decommissioning impacts, the impacts of each renewable energy technology were assumed to occur in or around a "project area." The project area is acreage necessary to generate the assumed megawatts for each technology, and the technology-specific assumptions used to determine the project area are described in Volume II, Description of Alternatives. The approach for distributing the megawatts to the DFAs under each alternative is described in Appendix F. For transmission, the impacts were assumed to occur in or around a right-of-way area. The right-of-way area width varies by transmission line type and is based on the Transmission Technical Group (TTG) Report (Appendix K). The following provides an overview of the technology-specific impact assumptions for siting, construction, and decommissioning.

- For solar Covered Activities (thermal, photovoltaic, and ground-mounted distributed generation), the project area necessary to generate one megawatt is 7.1 acres. It was assumed that long-term impacts (e.g., ground disturbance and infrastructure installation) to biological resources would occur within the entire solar project area. Short-term construction and decommissioning impacts would also occur within the solar project area. Infrastructure maintenance is assumed to occur within the same ground disturbance footprint as the infrastructure construction. The methods for assessing the operational impacts from solar Covered Activities, both terrestrial operational impacts and bird and bat operational impacts, are described below under operational impacts.

- For wind Covered Activities, the project area necessary to generate one megawatt is 40 acres. The impacts to biological resources from wind siting, construction of wind turbines and associated facilities, and decommissioning would affect substantially less acreage than the wind project area (approximately 6% of the wind project area would be impacted by ground disturbance). Therefore, it was assumed that the long-term impacts to biological resources from wind siting, construction, and decommissioning impacts would occur within the ground disturbance footprint for wind. Short-term construction and decommissioning impacts would also occur within the ground disturbance footprint. Infrastructure maintenance is assumed to occur within the same ground disturbance footprint as the infrastructure construction. The methods for assessing the operational impacts from wind Covered Activities, both terrestrial operational impacts and bird and bat operational impacts, are described below under operational impacts.
- For geothermal Covered Activities, the project area necessary to generate one megawatt is 5 acres. It was assumed that long-term impacts to biological resources would occur within the entire geothermal project area (e.g., ground disturbance and infrastructure installation). Short-term construction and decommissioning impacts would also occur within the geothermal project area. Infrastructure maintenance is assumed to occur within the same ground disturbance footprint as the infrastructure construction. The methods for assessing the operational impacts from geothermal Covered Activities, both terrestrial operational impacts and bird and bat operational impacts, are described below under operational impacts.
- For transmission Covered Activities, the right-of-way area necessary for each transmission line was based on the length of the line and the width of the right-of-way, which varies by the size of the transmission line. It was assumed that long-term impacts to biological resources would occur within the entire transmission right-of-way area (e.g., ground disturbance and infrastructure installation). Short-term construction and decommissioning impacts would also occur within the transmission right-of-way area. Infrastructure maintenance is assumed to occur within the same ground disturbance footprint as the infrastructure construction. The methods for assessing the operational impacts from transmission Covered Activities, both terrestrial operational impacts and bird and bat operational impacts, are described below under operational impacts.

Under the Preferred Alternative and the other action alternatives, siting, construction, and decommissioning impacts from renewable energy development would occur within DFAs. The DFAs under each action alternative cover a substantially greater acreage than the total area needed to generate the target megawatts (MW); therefore, only a portion of the DFAs would be impacted by renewable energy development. The location of project development

within the DFAs is not known so a proportional impact analysis approach was employed, as described further below.

Impacts to resources within the DFAs were estimated by: (1) calculating the proportion of the DFAs in each ecoregion subunit expected to be developed, and (2) then multiplying each subunit-specific impact proportion across the biological resources within the DFAs in that ecoregion subunit. Ecoregion subunits in the Plan Area are shown on Figure IV.7-1. The following provides the detailed methods for the impact analysis:

1. As described in II.3.1.3, the proposed impact acreage for each renewable energy technology (i.e., solar, wind, and geothermal) have been distributed to the DFAs in each alternative on a ecoregion subunit basis, such that for each subunit there is an identified impact acreage for each technology in each alternative. The subunit total ground disturbance and/or project area, as appropriate, for each technology was the basis of this impact analysis.
2. Application of strict avoidance Conservation and Management Actions (CMAs) would preclude development of Covered Activities in portions of the DFAs (see Section II.3.1.2.5). In order to reflect this within-DFA avoidance, the estimation of impacts (see #3 in the methods below) assumed the following areas would not be impacted by the Covered Activities within the DFAs. The full set of CMAs include all avoidance, minimization, and compensation measures for important landscape processes, all natural communities, and all Covered Species. The strict avoidance CMAs listed below are a subset of the full set of CMAs.
    a. Riparian areas and wetlands: The CMAs would require avoidance with setback of all riparian natural communities and land covers, specific wetland communities, and managed wetlands in Imperial Valley. Therefore, these resources were assumed not to be impacted by Covered Activities. Unavoidable impacts to these resources may be permitted as described by the CMAs; however, the DRECP CMAs and existing regulations would require compensation for any unavoidable impacts such that no net loss of these resources would occur.
    b. Dunes: The CMAs would require avoidance of the dune natural community; therefore, these resources were assumed not to be impacted by Covered Activities. Unavoidable impacts to these resources may be permitted as described by the CMAs; however, the DRECP CMAs would require compensation for any unavoidable impacts.
    c. Covered Species: The CMAs would require avoidance of the following species-specific resources in the DFAs. These resources were assumed not to be impacted by Covered Activities.
        i. Golden eagle: Avoidance of known golden eagle nests with a setback of 1 mile.

ii. Swainson's hawk: Avoidance of known active Swainson's hawk nests with a setback of 0.5 mile.

iii. Mohave tui chub, Owens tui chub, and Owens pupfish: Avoidance of known occurrences with setback of 0.25 mile.

iv. Bat roosts: Avoidance of known bat roosts with a setback of 500 feet.

v. Plant Covered Species: Avoidance of all plant Covered Species occurrences with a setback of 0.25 mile. Additionally, avoidance of suitable habitat with setback of 0.25 mile for, triple-ribbed milk-vetch.

3. The exact location of the impact on biological resources within the DFAs in each subunit is not known; therefore, the estimated impacts to resources are based on the technology-specific proportion of impact within the DFAs in each subunit. For example, if 5% of the available DFAs in a subunit would be impacted by solar development, then 5% of the extent of each biological resource in that subunit would be impacted. For Covered Species with modeled habitat in only a portion of a DFA subunit, for example, this would mean 5% of the modeled habitat acreage for that species within the DFA subunit would be impacted. This method of proportionally distributing the impacts to the DFA subunits was applied to the available DFA, which is the area of DFA remaining after applying the avoidance CMAs described in #2 above.

   Transmission effects are unique among the renewable energy development activities because they are not confined to DFAs. All transmission impacts were assumed to occur within DFAs or existing and planned transmission corridors, which occur both within and outside of DFAs. The impact analysis for transmission uses a method that is analytically equivalent to the method described above, but instead of using available DFAs to establish the context for the impacts, the analysis combines corridors developed from the TTG report, corridors on federal lands, and available DFAs, into a transmission effects area. The avoidance CMAs applied in #2 above were applied within the DFAs and the existing and planned transmission corridors outside of the DFAs. Identification of a transmission effects area provides the spatial context to evaluate transmission impacts similar to a DFA. Unlike DFAs, however, the transmission effects area is not intended to limit transmission to specific locations but simply identify areas most likely to be affected by transmission.

4. The impact analysis assumes that the full set of CMAs would be implemented. After estimating the quantitative impacts for each resource using steps 1-3 above, the impact analysis considered the effect of CMA implementation to determine to what extent the CMAs would further minimize, offset, or compensate the impact.

5. For an evaluation of the impacts within the BLM LUPA, the GCP, and the NCCP, the Plan-wide impact analysis conducted through #1–4 above was filtered to the BLM LUPA lands, the nonfederal GCP lands, and the NCCP lands.

The biological resources impact analysis was conducted at the landscape-level, at the natural community level and at the species level, and the analysis is organized by biological resources impact statements.

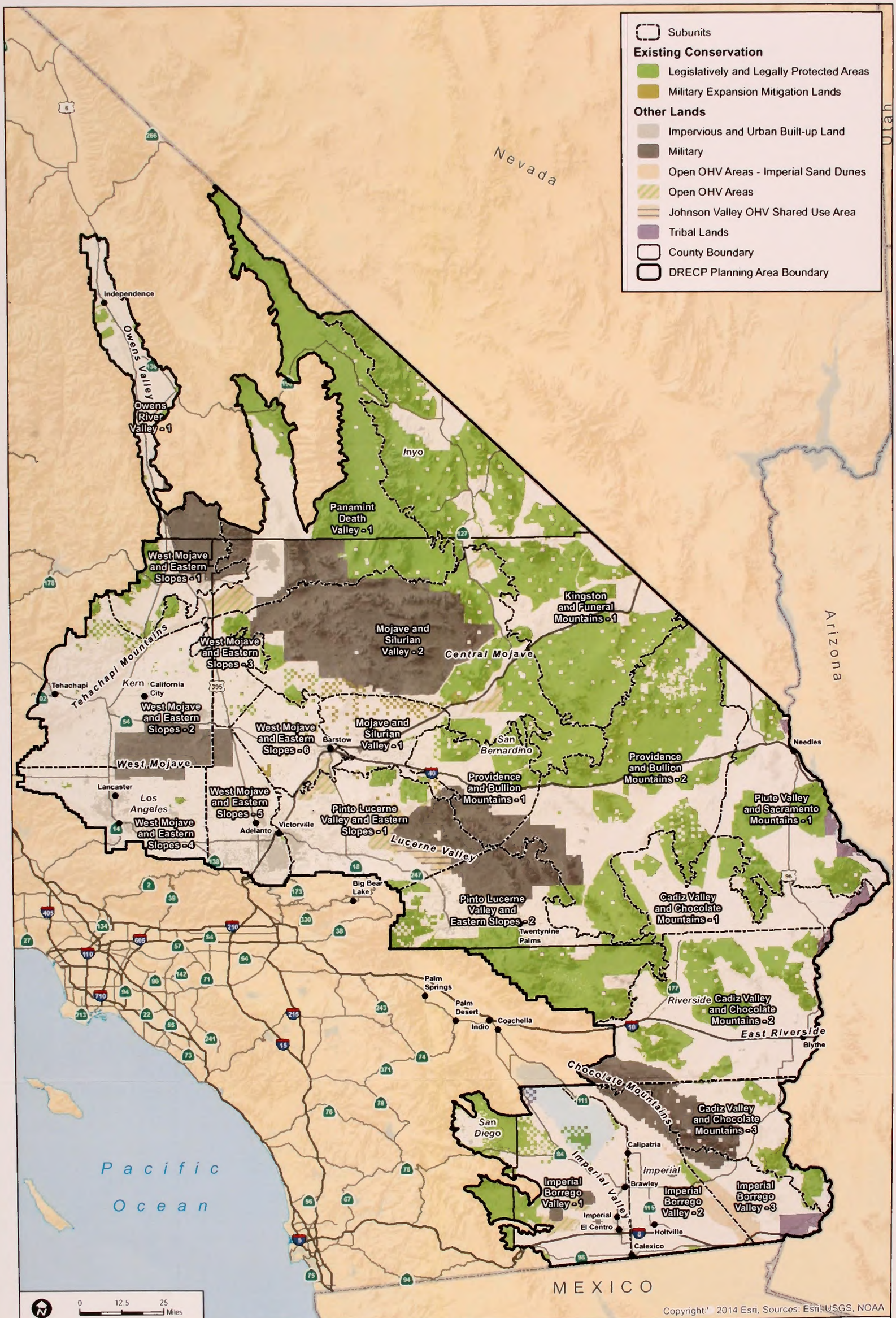
For the No Action Alternative, the ground disturbance and project area impacts from renewable energy and transmission development would occur on a project-by-project basis in a pattern similar to past and ongoing renewable energy, as described in Chapter II.2. The ground disturbance and project area impacts were estimated in a similar manner as the proportional approach used for the action alternatives, except that renewable energy development impacts were not limited to DFAs. Impacts were distributed to the areas currently available for renewable energy development, including the Solar PEIS Variance Lands, in the areas of the Plan Area with past and ongoing renewable energy development. CMAs would not be applied under the No Action Alternative; however, the analysis of the No Action Alternative assumes compliance with existing laws and regulations.

IV.7.1.1.2 Operational Impacts

Operational impacts are the long-term impacts associated with the ongoing operation and maintenance of renewable energy facilities. As with the siting, construction, and decommissioning related impacts, operational impacts of renewable energy development for all alternatives, except the No Action, occur within the DFAs. Operational impacts of transmission development would occur within DFAs or transmission corridors. The exact location of the impacts within the DFAs in each subunit is not known; therefore, the estimated impact to resources is based on the technology-specific proportional approach that divides impacts into each DFAs subunit.

Impacts are discussed in relation to the technology type (solar, wind, geothermal and transmission) and the mechanism by which the technology affects the biological resource. The following analysis discusses the effects of collision (the mechanism of impact) with respect to wind turbines, transmission, and solar structures separately. This differentiation is necessary because both the distribution of the technologies, and the magnitude and implication of impacts may vary. Furthermore, CMAs may be technology specific and are applied on a technology-by-technology basis.

The types of operational impacts analyzed include the effects of collision, light and glare, dust, noise, water, fire, and human disturbance. Where appropriate, impacts are subdivided in order to differentiate their potential effects on biological resources. For example, under mechanism of human disturbance, the impact analysis is divided into introduced diseases, invasive species, and predator subsidization.



Sources: ESRI (2014); CEC (2013); BLM (2013); CDFW (2013); USFWS (2013)

FIGURE IV.7-1
Subunits

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In developing the analysis for each operational effect, the scope and scale of the analysis considered the following issues:

- The quality and extent of existing information (including literature from monitoring studies as well as peer reviewed studies or reports)
- The extent to which current best management practices can be considered when assessing likely impacts
- The relationship between the generation distribution described in Section II.3.1 and the extent of the operational impacts
- The potential impacts of operational activities on landscape, natural communities, and Covered Species

Operational impacts may occur within the same area as the impacts resulting from siting, construction, and decommissioning impacts of Covered Activities. In these cases, the extent (i.e., acreage) of the operational impact can be quantified. Operational impacts may also occur beyond the ground disturbance impact, beyond the boundaries of the project area, or above a project area. For solar and geothermal operational Covered Activities, the extent of ground disturbance is the same as the project area extent. For wind Covered Activities, the siting, construction, and decommissioning impacts are quantified by the ground disturbance impacts only, and the impacts from wind operations (both terrestrial and bird-bat related) are quantified using wind project area and rotor swept area.

Some impacts such as lighting or reflection and refraction from infrastructure may attract wildlife, while other mechanisms like noise may repel wildlife. In these two instances, the effects are exerted beyond the boundaries of a project. In the same way that the exact locations of projects within DFAs are unknown, the extent of these operational impacts is also unknown. Factors such as topography and local prevailing winds make it impossible to accurately estimate these wider area effects for the geographic size and environmental variation that exists in the Plan Area. Analysis of these impacts focuses on a discussion of the potential effects and the relative distribution of impacts between subareas. The relative magnitude of impacts expected in each subarea corresponds with the amount of development occurring in each subarea.

Bird and Bat Collision

Wind Turbines

Collision risks to birds and bats depend on several factors, including species-specific behavior, turbine size, number of turbines, and turbine location, that limit the ability to estimate the collision risk without site-specific and project-level information. Project-level estimates of collision risk would require avian and bat use data to be collected over

multiple seasons (WTGAC 2010). Any prediction of mortality risk, even using the best current models, requires both site-specific and species-specific studies (Smales et al. 2013). There are numerous project-specific mortality reports available from existing operating wind projects in the Plan Area; however, these studies lack standardized collection methods, which limit their use in determining collision risk across the DRECP. Due to the programmatic scale of the DRECP, a project-level analysis of collision risk was not considered feasible.

The typical impacts associated with wind turbine collisions are described in Section IV.7.2. The DRECP assessment of collision impacts with wind turbines is provided based on: (1) an estimate of the distribution of wind turbines across the Plan Area for each alternative (based on DFA locations with wind resources), (2) the range of potential collision rates for bird and for bats (based on published collision rates for birds and bats) (described in Section IV.7.2.1.3), and (3) the proportion of generation expected to be wind.

Collision rates per MW of installed capacity were estimated for all birds from information compiled from current environmental permitting documents. The potential distribution of wind turbines and hence collisions across the Plan Area corresponds with the subarea-based estimate of wind generation described in Chapter II.3, Preferred Alternative. The collision rate estimates were calculated on a per-MW basis for birds and bats and multiplied by the anticipated MWs per acre (for example, an assumed collision rate of 0.75 birds per MW at an assumed acreage yield of 1 MW per 40 acres would yield and average of 0.75 bird collision per 40 acres. In addition, collision rate estimates for Covered Species were assumed for annual take of wind projects at full build out. These estimates provide an indication of relative expected take between different alternatives, technologies, and subareas.

Transmission Lines

The typical impacts associated with transmission line collisions are described in Section IV.7.2. Detailed collision rates for transmission lines in the Plan Area are not available. Therefore, the analysis of the likely effects of transmission line collision is based on the locations of expected new transmission development and the known distribution and movement patterns of bird and bat species. In particular, the analysis highlights the potential effects of new transmission lines on the migratory routes such as the pacific flyway, as well as local movement corridors for example between the Colorado River and the Salton Sea.

Solar Structures: Collisions, Solar Flux and Lake Effects

Solar troughs, photovoltaic arrays, heliostats and power towers, found in large solar generation facilities, pose a range of potential hazards for both bird and bat species. All structures are potential collision hazards, and the operation of power towers creates a solar

flux that concentrates energy that can injure aerial species. Further, reflective arrays and heliostats can mimic water bodies and cause behavioral changes resulting in collision for some avian species. The extent to which the operation of solar facilities is a risk depends by their location in relation to bird and bat foraging, nesting/roosting, and migration patterns.

The impacts of solar structures and their operation are discussed qualitatively in relation to the Covered Species. For the purpose of comparison between alternatives at the subarea scale, the distribution of solar generation ground disturbance in relation to the distribution of biological resources was used as a proxy for the magnitude and distribution of operation impacts associated with solar. For the purpose of analysis, the following assumptions were made when assessing the effects of solar structures on biological resources:

- Distribution and magnitude of effects for each alternative were estimated from the subarea-based estimates of solar ground disturbance, as described in Volume II. The extent of solar infrastructure is directly correlated with the extent of solar ground disturbance (i.e., more ground disturbance equates to more infrastructure; the areas that pose a risk of affecting bird and bat species is directly related to the amount of solar ground disturbance in a subarea). Therefore, the distribution effects between subareas is determined by the distribution of solar ground disturbance of the relevant technology.
- Analysis of solar structure impacts on biological resources were assessed based on the distribution of the bird and bat Covered Species (using the species distribution models) and migratory birds, and the distribution of solar thermal facilities.
- On a subarea basis, the analysis compares the distribution of bird and bat species and the proximity and amount of allowable solar facilities.

The Plan assumes that the application of avoidance and minimization CMAs for biological resources would result in the exclusion of renewable energy generation from sensitive areas within the DFAs. In addition, the Plan assumes implementation of general avoidance CMAs, and standard siting and design CMAs for birds and bats.

Estimated Take of Covered Avian and Bat Species by Operational and Maintenance Activities

Annual take by operational and maintenance (O&M) Covered Activities was estimated for Covered Species in each ecoregion subarea for full build out of all technologies. For the purpose of this analysis, full build out was assumed to have been completed by 2038 with a linear growth rate of facilities of four percentage points per year assumed for the first 24 years of the Plan (i.e., 2014 was assumed to have 4% of the take estimated for full build out, 2015—8% of the take, 2016—12% of the take, etc.). Take was assumed to be proportional to the quantity of generation as measured in MWs in each ecoregion subarea. Take

estimates were adjusted to account for both technology based factors and species-specific factors that were considered to be influential on the likely take of a given Covered Species.

All other factors being equal, the initial take for a typical solar facility of 100MWs (that would occupy about 710 acres) was assumed to be 1-2 individuals per bird Covered Species over the lifetime of the Plan. For wind the initial take for a 100 MW wind project was assumed to be 2-4 individuals per bird Covered Species. For bat Covered Species, take by solar was assumed to be similar to bird Covered Species, but for wind generation was assumed to be substantially higher at 10-20 individuals per bat Covered Species over the lifetime of the Plan. Take was then either increased or reduced based on assumptions about the likely distribution of generation, both between ecoregion subareas and within ecoregion subareas, and our understanding of the life history, behavior, known locations, and the location of movement and migration corridors for Covered Species. Covered Species were considered both individually and grouped into guilds defined by their primary habitat (i.e., wetland, riparian, agricultural and disturbed, and desert scrubs when modifying expected mortality).

The following rules and assumptions were then applied to modify expected take:

- Specific guilds of Covered Species were assumed to be more or less at risk from O&M activities. For example, generation projects were assumed to avoid riparian and wetland habitats; therefore, take of riparian bird Covered Species in most subareas were negatively weighted (i.e. the take of riparian bird Covered Species was viewed as less likely and reduced). Species ecology dictated positive or negative weighting to the range of potential take. In riparian bird Covered Species example, the exception to the assumption was for alternatives with DFAs near the Colorado River corridor, or where DFAs surround the New River and Alamo River in Imperial Valley, in these situations take of riparian bird Covered Species was assumed to be more likely and adjusted upwards.
- For solar, projects are more likely to be sited within agricultural, ex-agricultural and disturbed habitats, or in open flat undisturbed desert scrub habitats. Therefore, Covered Species associated with these habitats were assumed to be at greater risk over the life of the Plan. Consequently, estimates for burrowing owl, greater sandhill crane, Swainson's hawks and mountain plover were positively weighted (i.e., expected take was increased to account for the assumed siting bias).
- For wind, project locations are relatively limited and are likely to be sited in open topographically complex habitat like the eastern slopes of the Tehachapi Mountains, and on the slopes of the San Bernardino Mountains. For bird Covered Species associated with the West Mojave (e.g., tricolored black bird and Swainson's hawk), take by wind was positively weighted because of its expected distribution.

Elsewhere, the distribution of wind projects is limited to specific locations that may be particularly sensitive. For example, special weighting was given to alternatives that identified McCoy Valley, as a potential location for wind generation. Due to its location on both migratory corridors and is proximity to the Colorado River, take of riparian and wetland bird Covered Species was assumed to be higher.

- Geothermal has relatively few feasible locations for development, primarily in Imperial Valley. Depending on the alternative, particular consideration was given to the potential for geothermal to affect wetland and riparian species along the southern edge of the Salton Sea since this area is a location of considerable overlap between wetland bird Covered Species like the Yuma Clapper Rail and the California black rail and potential geothermal projects.
- Where known, migratory corridors or movement corridors for some bird Covered Species were considered sufficiently important to increase take estimates. For example, Yuma Clapper Rail movement between the Colorado River and the Imperial Valley was considered to be sufficiently frequent that it to increase the overall take for that species in the Cadiz Valley and Chocolate Mountains ecoregion subarea.
- For many bird Covered Species, such as burrowing owl and Bendire's thrasher, much of the Plan Area has been identified as potential habitat. For these Covered Species the locations of observation records were especially important, when considering the overlap with Covered Activities. In these cases, take was reduced in subareas that showed no recent observations.
- For bat Covered Species, no positive or negative weightings were identified to modify take estimates, since many of the known roosts fall outside of DFAs and specific CMAs address the siting of projects near roosting sites.

Using these rules and assumptions, the estimated range of Covered Species take per MW was adjusted and applied to each alternative for the analysis.

Lighting and Night Lighting

Operational impacts may occur beyond the boundaries of the project area or above a project area, including potential impacts from lighting and night lighting. The impact mechanisms for lighting and night lighting may attract or repel wildlife. In these two instances, the effects extend beyond the boundaries of a project. In the same way that the exact locations of projects within DFAs are unknown, the extent of these operational impacts is also unknown. Topography and other environmental factors make it difficult to accurately estimate these wider area effects for the geographic size and environmental variation that exists in the Plan Area. Analysis of these impacts focuses on a discussion of the potential effects and the relative distribution of impacts between subareas. The relative

magnitude of impacts expected in each subarea corresponds with the amount of development occurring in each subarea.

- Analysis of impacts from aircraft warning lights was confined to assessing the relationship between the distribution of bird and bat species, as defined by the species habitat models, and the distribution of wind turbines and solar power towers, as described by the ground disturbance.
- The effects of night lighting are discussed with particular emphasis on species for which there is documented evidence of behavioral changes as a consequence of night lighting. It was assumed that all technologies would require night lighting for their primary production areas (generation facilities, operations and maintenance areas, substations, etc.). The overall distribution of night lighting was based on the ground disturbance footprint. For the purpose of analysis, all technologies were analyzed together to provide a single assessment of night lighting effects for each alternative.
- The analysis of polarized light pollution and water-mimicking effects compared the distribution of solar generation at the subarea level with the distribution of birds, as defined by the distribution of species and migration routes through the Plan area.

Dust and Dust Suppression

Some impacts may result in effects beyond the boundary of a project, including the effects of dust and dust suppressants that are often dispersed beyond project boundaries by wind and water conveyance. For this analysis, dust and dust suppression activities are generally considered to repel wildlife and result in adverse effects for plants and natural communities. In the same way that the exact locations of projects within DFAs are unknown, the extent of these wider area impacts are also unknown. Factors such as topography and local prevailing winds make it impossible to accurately estimate the extent of these wider area effects for the geographic size and environmental variation that exists in the Plan Area. Analysis of these impacts includes a discussion of the potential effects and the relative distribution of impacts between subareas. The relative magnitude of impacts expected in each subarea was estimated by using the acreage of ground disturbance as an indicator of the generation of dust from Covered Activities and use of dust suppressants.

Dust emission rates within the Plan area have been observed to fluctuate from daytime to nighttime and throughout different parts of the year (Goossens and Buck 2011). Natural factors including the surface type and soil composition, wind speed, soil moisture content, and depth of the groundwater table can lead to substantial variations in the amount of dust emitted (Reynolds et al. 2007). Human factors such as disturbance of soils can also cause substantial amounts of dust and can even become the primary source of dust emissions in certain areas (Goossens and Buck 2011). Research has described the mechanisms of dust

transportation and developed methods to quantify dust emissions from some human activities, such as off-road vehicle use, that require detailed information characterizing the extent of the human activities as well as specific environmental factors. However, due to the variability in project-related activities, environmental conditions, and location of sensitive natural communities and species' modeled habitats, the site-specific details that would be required for quantitative projection of dust creation are not available for the magnitude and variation that exists within the Plan Area. Therefore, impacts from dust are qualitatively described in relation to the sensitivities of each biological resource and the location of potential dust emissions as a result of Covered Activities. For the purpose of comparison between alternatives at the subarea scale, the following assumptions were made when assessing the effects of dust on biological resources:

- The distribution of dust generation at a subarea scale would be similar to the distribution of ground disturbance effects, where the change in dust emissions due to Covered Activities would likely be concentrated.
- The use of dust suppressants (discussed below) that would reduce dust effects were assumed to apply to Covered Activities.
- Analysis of dust impacts was based on the relationship between renewable energy facilities and the distribution of the dust-sensitive landscapes, landforms with a greater propensity for dust deposition, as well as the distribution of natural communities and Covered Species. This comparison was qualitatively compared on a subarea level.
- The effect of dust was evaluated with particular emphasis on landscapes, as well as plant species and natural communities, for which there is documented evidence of dust impacts from operation of renewable energy facilities. The severity of these impacts was assumed to be similar in proportion to that described in the available research and information.

The analysis of biological resource impacts was primarily at the landscape scale. For example, the geographic distribution of operational dust generated by vehicles at wind facilities was related to the biological resources known to be affected by the dust in the ecoregion subareas.

For each technology, the variations in dust suppression impacts associated with specific Covered Activities are qualitatively described in relation to the sensitivities of each biological resource. For the purpose of comparison between alternatives at the subarea scale, the distribution of dust suppressant impacts is assumed to be directly related to the proportional distribution of impacts to biological resources described for ground disturbance.

For the purpose of analysis, the following assumptions were made when assessing the effects of dust suppressants on biological resources:

- The distribution of dust suppressant effects between subareas would be similar to the distribution of ground disturbance effects.
- Given that responses to dust suppressants used during operation could vary considerably due to suppressant chemical formulation and site-specific details, the effects analysis was limited to a discussion of the potential natural community level response to potential dust suppressant impacts.
- For each subarea, the analysis compared the likely natural communities that operational applications of dust suppressants could affect at sites expected to have renewable energy facilities.

The analysis of biological resource impacts is conducted primarily at the natural community scale and assumes that impacts are similar to those described in the available information.

Noise

Equipment may generate noise and vibration that repel wildlife from the source of the noise. Noise effects may extend beyond the project boundaries as well. In the same way that the exact locations of projects within DFAs are unknown, the extent of these operational impacts is also unknown. Environmental factors such as variable topography and soils make accurate estimation of the extent and location of these wider area effects difficult for the scale of the Plan Area. Analysis of these impacts focuses on a discussion of the potential effects and the relative distribution of impacts between subareas. The amount of development occurring in each subarea is assumed to correspond with the relative magnitude of noise impacts.

The inherent variability in the technology type, location of noise sources on project sites in relation to species habitats, the sensitivity of different biological receptors, and the diversity of other environmental factors that can significantly affect noise propagation (e.g., topography and vegetation) pose substantial challenges in determining technology- and project-specific noise impacts on wildlife. Currently, consistent quantitative methods to monitor biological impacts from operational noise at renewable energy facilities are not in place. Therefore, data that furnish a meaningful measure of noise impacts for a diverse range of project sites and sensitive receptors are not available. Consequently, noise-related impacts for Covered Activities are qualitatively described in relation to the sensitivities of each biological resource. For the purpose of comparison between alternatives at the subarea scale, the distribution of noise impacts is assumed to be directly related to the proportional distribution of

impacts to biological resources described for ground disturbance impacts. In this analysis, the following assumptions were made when assessing the effects of noise on biological resources:

- The distribution of the sources of noise effects between subareas would be similar to the distribution of ground disturbance from renewable energy development, where the increase in noise from Covered Activities would be likely be concentrated.
- The application of CMAs for siting and standard practices that would reduce noise effects. These include vehicle speed limits, strategic placement of access roads away from suitable habitat, as well as standard shielding and enclosures for noise generating equipment.
- Analysis of noise impacts assessed the relationship between the distributions of the noise-sensitive species, as defined by the distribution of species, and the distribution of likely renewable energy facilities between different subareas.
- The effects of operational noise are evaluated with particular emphasis on the species for which there is documented evidence of behavioral impacts as a consequence of noise.
- The comparison analysis of likely species that would be affected by operational noise was performed at the subarea level in relation to the distribution of renewable energy facilities.

Evaporation and Cooling ponds

Analysis associated with evaporation and cooling ponds focused on the likely impacts to species and assessed the likely significant areas where ponds may have the most impacts within the Plan Area. The analysis of typical impacts was based on information available from current monitoring programs for existing generation facilities, used in conjunction with existing published information relating to net entanglement and salt toxicosis. Assuming that the distribution or evaporation ponds was closely associated with the distribution of solar facilities, their likely extent and locations were inferred from the distribution of operational impacts.

Fire and Fire Management

Fire

For analysis purposes, fire events were treated as natural community level impacts, which included Covered Species habitat within those communities. The natural communities within the Plan were grouped by communities that are generally more resilient to varying fire regimes and those generally less resilient to changes in the frequency or intensity of fire

events. Natural communities and land covers were divided according to their ecological resilience to fire as follows:

- Non-native or disturbance related land covers (i.e., rural/disturbed areas and agriculture): areas that exhibit little ecological change as a consequence of fire
- Fire-resilient natural communities: Natural communities that can adapt to a wider range of fire regimes before experiencing degradation of permanent conversion to a different community type.
- Non-resilient natural communities: Natural communities for which fire was historically a rare event in the ecological cycle and/or which have a limited capacity to adapt to changes in fire frequency or intensity. Natural communities that are not historically resilient to fire may take decades to recover and are highly susceptible to invasive non-natives.
- Indeterminate natural communities: Natural communities for which the role or effect of fire is not clearly defined or understood.
- Not Applicable (N/A): Natural communities for which fire resilience is not relevant (e.g., open water bodies)

Table IV.7-1 categorizes the natural communities as fire resilient, non-resilient, and indeterminate. Desert scrub, desert woodland and riparian communities were identified as being the least fire adapted; that is, more likely to undergo type conversion and be less resilient to invasive non-native species with increased fire frequency and/or intensities. California woodland and chaparral communities were identified as generally fire resilient.

In the analysis, each community group is discussed in relation to the overall subarea distribution of communities in the DFAs.

Table IV.7-1
List of Fire Resilient and Non-Resilient Natural Communities

Fire Resilient	Fire Non-Resilient
Californian broadleaf forest and woodland	Arid West freshwater emergent marsh
Californian mesic chaparral	Arizonan upland Sonoran desert scrub
Californian montane conifer forest	Californian warm temperate marsh/seep
Californian montane conifer forest	Intermontane deep or well-drained soil scrub
Californian montane conifer forest	Intermontane seral shrubland
Californian pre-montane chaparral	Inter-Mountain Dry Shrubland and Grassland
Californian xeric chaparral	Intermountain Mountain Big Sagebrush Shrubland and steppe
Central and south coastal California seral scrub	Lower Bajada and Fan Mojavean - Sonoran desert scrub

Table IV.7-1
List of Fire Resilient and Non-Resilient Natural Communities

Fire Resilient	Fire Non-Resilient
Central and south coastal Californian coastal sage scrub	Great Basin Pinyon - Juniper Woodland
	Madrean Warm Semi-Desert Wash Woodland/Scrub
Agriculture, Developed and Disturbed	
Agriculture	Madrean Warm Semi-Desert Wash Woodland/Scrub
Developed and Disturbed Areas	Mojave and Great Basin upper bajada and toeslope
Rural	Mojavean semi-desert wash scrub
	North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat
Indeterminate	North American warm desert bedrock cliff and outcrop
California Annual and Perennial Grassland	North American warm desert bedrock cliff and outcrop
California annual forb/grass vegetation	North American warm desert dunes and sand flats
Western Mojave and Western Sonoran Desert borderland chaparral	Riparian
	Shadscale - saltbush cool semi-desert scrub
N/A	Sonoran-Coloradan semi-desert wash woodland/scrub
Open Water	Southern Great Basin semi-desert grassland
Playa	Southwestern North American alkali marsh/seep vegetation
	Southwestern North American riparian evergreen and deciduous woodland
	Southwestern North American riparian evergreen and deciduous woodland
	Southwestern North American riparian/wash scrub
	Southwestern North American salt basin and high marsh
	Southwestern North American salt basin and high marsh
	Wetland

Source: Sawyer et al. 2009

Fire Management

In addition to the effects of fire, the effects of fire management may result in changes to natural communities. Fire management may involve many measures designed to reduce the risk of fire ignition and spread. Many of these activities would be expected to have little or no direct adverse impacts resulting from their implementation (e.g., requirement of spark arresters, design features to reduce the chance of accidental ignitions, etc.), but would reduce the risk of fire when applied. Analysis of fire management activities was confined to those activities that may result in ground and/or vegetation disturbances that could adversely affect biological resources. Such activities include fuel management and

maintenance of fire breaks and installation of permanent on-site emergency water tanks. Related management activities such as fire patrols are assessed as part of the increased human disturbance section below. The effects and mechanisms by which fire patrols would impact biological resources (e.g., use of vehicles, leading to potential collisions with wildlife, introduction of exotic plants, etc.) are effects that are identical to the other maintenance activities associated with projects.

The following approach was used in analyzing the distribution and magnitude of fire management impacts:

1. Two activities were analyzed for fire management purposes:
    a. The use of fuel and fire breaks. The construction and management of fire breaks increase the likelihood and spread of non-native species as a consequence of reducing native cover and introducing human activity into otherwise untouched areas (Merriam et al. 2006).
    b. Vegetation modification for transmission facilities. For the purpose of analysis, management activities associated with vegetation clearing would adhere to CPUC General Order 95 that requires utilities to maintain set clearances between encroaching vegetation and transmission lines.
2. The prevalence of each fire management activity for each technology was assessed and the consequence of the fire management activities on fire-resilient and fire non-resilient communities was discussed in the context of each alternative.
3. The installation of water towers, watch towers, and other facilities that may be needed, especially for remote sites, were factored into ground disturbance estimates and would result in little or no additional impacts.

Increased Human Presence

Increased human presence impacts result as a consequence of many different Covered Activities associated with the operational activities of renewable energy and transmission facilities. Impacts result from any activities that require the ongoing presence of work personnel and their associated vehicle and equipment operation. Increased human presence may impact landscapes, natural communities, and Covered Species through several different mechanisms, and may be viewed as a long term low-level impact.

The effects of human presence on biological resources were already discussed in relation to noise, lighting, and dust effects impacts. For the purpose of this analysis, human presence effects specifically refer to activities that may result in behavior changes, mortality, injury, or harassment that occur either directly or indirectly as a consequence of contact with humans. This could involve several different mechanisms, including but not limited to

vehicle collisions, avoidance behavior, collecting, disease (e.g., canine distemper), subsidized predators and pesticide use.

Human presence impacts may occur throughout the entire Project Area, but the relative intensity or frequency will vary depending on the type and level of human activities. Generation facilities, operational buildings, and substations would be areas of high intensity, daily usage, such as relatively frequent vehicle trips that increase collision risks, landscape maintenance, etc. Other facility components, for example, transmission lines, fencing, culverts, and ditches, may receive infrequent inspection and maintenance on the order of 1 or 2 visits per year, and thus pose a relatively low risk of human presence effects. Included in human presence effects are biological surveys and monitoring activities that themselves could increase regular human presence in areas that would otherwise remain undisturbed.

The inherent variability in the technology type, location of human presence on renewable energy sites, the sensitivity of different biological resources, and the diversity of environmental factors present substantial challenges for determining specific impacts on wildlife and plants. Consequently, human presence-related impacts for Covered Activities are qualitatively described in relation to impacted biological resource. For the purpose of comparison between alternatives at the subarea scale, the distribution of human presence impacts was assumed to be directly related to the distribution of operational activities. For wind, operational impacts from increased human presence were considered to affect an area equivalent to 25% of the total project area. For solar and geothermal, operational impacts from increase human presence were considered to affect the project area, which is also equivalent to the ground disturbance area. For transmission, operational impacts from increased human presence were considered to affect the right-of-way area.

IV.7.1.1.3 Reserve Design Impacts

This section provides the methods used to analyze the impacts of the reserve design envelope, which provide a beneficial effect for biological resources. The reserve design impacts section of each alternative serves as the conservation analyses for the landscape features and ecological process-related resources, natural communities, and Covered Species.

As described in Volume II, a DRECP Plan-Wide Reserve Design Envelope comprised of Reserve Design Lands has been developed for each alternative based on the reserve design process, summarized in Section I.3.4.4 and detailed in Appendix D. The reserve design envelope identifies important areas for conservation in available lands (i.e., the entire Plan Area excluding military lands, BLM Off-Highway Vehicle open areas, and tribal lands) outside existing protected areas needed to meet Plan-wide Biological Goals and Objectives (BGOs; see Appendix C) for landscape features and processes, natural communities, and Covered Species. The DRECP Plan-Wide Reserve Design Envelope for

each alternative is comprised of existing conservation areas, BLM LUPA conservation designations, and Conservation Planning Areas.

To evaluate the DRECP Plan-Wide Reserve Design Envelope for each alternative, the Reserve Design Lands in each alternative were compared to the reserve design envelope developed through the reserve design process described in Volume I, Section I.3.4.4. Conservation percentages, as described below and in Appendix S, assigned for the purpose of quantifying conservation in the Reserve Design Lands, were not used in this gross evaluation of the reserve design. This evaluation provides a quantitative assessment of the geospatial configuration of the Reserve Design Lands in each alternative relative to the reserve design envelope. An evaluation of the reserve design envelope for specific landscape elements and processes, natural communities, and Covered Species is provided in the conservation analysis for those resources.

For the purpose of quantifying the conservation of resources within reserve design envelope for each action alternative, the Reserve Design Lands components were assigned a conservation percentage (see Appendix S). Resources within each component of the Reserve Design Lands were assumed conserved at a level consistent with the assigned conservation percentage. The conservation percentages were used only to facilitate the conservation analyses and represent a reasonable assumption related to the level of conservation that could be expected in the Reserve Design Lands. For all analyses of the conservation of resources at the landscape, natural community, and Covered Species levels, the acreages reported within Reserve Design Lands were calculated using the assigned conservation percentages.

For the No Action Alternative, existing conservation includes Existing Protected areas (i.e., LLPAs and MEMLs) and existing BLM land use plan conservation designations (i.e., ACECs). There are no proposed BLM LUPA conservation designations and there are no Conservation Planning Areas for the No Action Alternative. Conservation percentage assumptions have been applied to Existing Protected areas and existing BLM land use plan designations as described in Appendix S. Mitigation for planned or future renewable energy and transmission development under No Action is assumed to occur on a project-by-project basis but is not quantified or located geographically in the analysis; however, nonfederal inholdings within BLM LUPA conservation designations could be used for mitigation for planned or future renewable energy and transmission development under the No Action Alternative and are quantified in the analysis.

The conservation analysis is organized at three levels:

- Landscape Conservation Analysis: At the landscape level, the conservation analysis focuses on landscape features and ecological process-related resources, including habitat linkages (using the Desert Linkage Network design), environmental

gradients (i.e., elevation, landform, slope, and aspect), dunes and sand resources, and hydrological resources (e.g., playa, seep/spring, and major rivers).

- Natural Communities Conservation Analysis: The conservation analysis for natural communities presented in this section includes analyses at both the general level and the natural communities level.
- Covered Species Conservation Analysis: The species-level conservation analysis addresses all Covered Species. At the species level, the analysis focuses on each species' modeled suitable habitat and other species-specific analyses. Analysis of conservation for Non-Covered Species is also provided.

IV.7.1.2 CEQA Standards of Significance

In determining whether an impact to a biological resource is significant under CEQA, the following standards from Appendix G of the CEQA Guidelines (Cal. Code of Reg., title 14, sections 15000–15387) were consulted and used in making CEQA significance determinations:

a) Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

b) Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

c) Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

d) Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

e) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

f) Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

IV.7.2 Typical Impacts Common to All Action Alternatives

This section describes the typical impacts of renewable energy and transmission development, typical impacts of the reserve design, typical impacts of BLM Land Use Plan decisions, and typical impacts of the Natural Community Conservation Plan and General Conservation Plan. This is an overview intended to describe the type of impacts to biological resources that would be expected from implementation of the DRECP. Section IV.7.3 describes alternative-specific impact analysis for biological resources.

IV.7.2.1 Impacts of Renewable Energy and Transmission Development

An overview of the typical impacts to biological resources from renewable energy and transmission development is provided below, which includes a description of site characterization impacts, construction and decommissioning impacts, and operations and maintenance impacts.

IV.7.2.1.1 Impacts of Site Characterization

Site characterization includes any type of assessment conducted to determine whether a site is suitable for the development of renewable energy or transmission. A full description of the site characterization activities associated with all Covered Activities is provided in in the description of Covered Activities provided in Section II.3.1.4 (Overview Description of Covered Activities). Site characterization impacts include would result from a range of site surveying and testing activities conducted prior to project construction, including installation of MET (meteorological) towers, geotechnical studies, biological studies, and other suitability assessments. Site characterization impacts are assumed to occur in DFAs for solar, wind, and geothermal and in DFAs or transmission corridors for transmission. Site characterization impacts would result in similar impacts to biological resources as is discussed below for construction and decommissioning but would be relatively limited in extent and magnitude, including impacts associated with accessing and traversing the site, bore construction, tower installation, or other similar activities.

IV.7.2.1.2 Impacts of Construction and Decommissioning

Typical impacts associated with the construction and decommissioning of the renewable energy generating and transmission projects include modification/disruption of ecological processes, removal or alteration of natural communities, and the loss of species or their habitat. A full description of the construction and decommissioning activities associated with all Covered Activities is provided in in the description of Covered Activities provided in Section II.3.1.4 (Overview Description of Covered Activities). These impacts often result from ground disturbance activities associated with the construction or decommissioning of these projects. All ground disturbance impacts are considered long-term. Short-term

impacts to biological resources also result from construction activities or decommissioning activities during these phases of projects.

Activities related to the construction and decommissioning of renewable energy projects may cause the direct mortality of wildlife and plant species. Subterranean or burrow-dwelling species are most susceptible to direct mortality from ground disturbance. In the Sonoran Desert in California, Cowles (1941, cited in Lovich and Ennen 2011) notes that most reptiles hibernate at relatively shallow depths. Vehicular activities related to construction and decommissioning could cause the direct mortality or entrapment of subterranean animals (Lovich and Ennen 2011). Direct mortality is anticipated to be less of a threat to larger, more mobile wildlife species and birds. See below for a discussion of wildlife mortality associated with roads.

Construction and decommissioning activities can cause the destruction and modification of habitat for plant and wildlife species. The removal of vegetation to construct access roads and build the infrastructure associated with Covered Activities would result in the loss of natural communities and habitat for plant and wildlife species. Ground disturbance during construction and decommissioning effects undermine the stability of soil aggregates and biotic crusts leading to greater potential for erosion; increase can also affect soil density and decrease the inversely related rate of water infiltration, thus cutting off water supplies to plant roots; and promote secondary plant succession (plant growth following a disturbance event), including invasion by exotic plant species. These factors all contribute to habitat quality for native wildlife and plant species. Therefore, alteration of these factors, singularly and in combination, can affect the ability of an area to support native plant and wildlife species. An increase in soil erosion can physically and physiologically affect plant primary production and food availability for wildlife (Lovich and Ennen 2011). Habitat destruction and modification are expected to affect all wildlife species, but may have a more pronounced effect on species of limited distribution or habitat specialists. Species with greater mobility, such as birds and large mammals, may be less affected by habitat removal in a specific area than smaller mammals, amphibians, and reptiles.

Construction and decommissioning can also alter the hydrologic regime of the area subject to ground disturbance. Vegetation removal and topographic alternations affect drainage patterns intended to divert surface flow away from renewable energy facilities. Channeling runoff away from plant communities decreases water availability and can negatively affect habitat quality (Lovich and Ennen 2011). Areas with diverted surface flow support less biomass of both annual and perennial plants compared to adjacent areas with undisturbed water surface flow (Shlesinger et al. 1989, cited in Lovich and Ennen 2011). Less biomass influences the wildlife shelter and forage. In addition, it may precipitate a change in vegetation structure and/or composition that may alter and/or limit the suite of wildlife species that can use that area.

The construction of roads is an important part of the infrastructure supporting renewable energy development. Both paved and unpaved roads have documented negative effects on wildlife. Roads contribute both to direct morality of wildlife species from road kill and more indirect effects from the presence of traffic and introduction of invasive species. (Brooks and Lair 2005; Lovich and Ennen 2011). In a study documenting the effects of roads on Agassiz's desert tortoise, for example, fewer tortoises and less tortoise sign were found near roads than were found farther away from roads. Roads with high traffic volumes had reduced tortoise sign up to 4,000 meters (2.49 miles) from the road (von Seckendorff Hoff and Marlow 2002, cited in Lovich and Ennen 2011). On the other hand, vegetation and arthropod herbivores tend to increase along roads, perhaps because of the increased runoff from the impervious pavement or compacted soil. The more dense or larger vegetation and greater prey availability directly adjacent to roads may attract more wildlife, including Agassiz's desert tortoise, making them more susceptible to vehicle strikes (Lovich and Ennen 2011). Small mammals, amphibians, and reptiles would be more susceptible to the effects of roads than would more mobile larger mammals and aerial species (i.e., birds and bats).

Construction of renewable energy and transmission projects has the potential to impact wildlife movement across the landscape and result in habitat fragmentation effects and population isolation. Impacts from Covered Activities on wildlife movement can result from the loss of terrestrial habitat in movement areas or linkages and from the effects of the operations of Covered Activities on wildlife movement. These effects can adversely impact species through limiting dispersal and genetic exchange, limiting movement within a population for wide-ranging species, and limiting or impairing the ability of species to respond to the effects of climate change (Groom et al 2006). Groom et al (2006) define habitat fragmentation as a reduction in area covered by a habitat type in a landscape and/or a change in habitat configuration resulting in less habitat area or more isolated habitat patches. In addition to the direct loss of habitat, the effects of habitat fragmentation include crowding of remaining habitat areas, reduction of biodiversity in remaining habitat areas, population isolation, edge effects, species invasions, and alteration or degradation of ecological processes.

Siting, construction, and decommissioning can also result impacts to biological resources that are limited to these discrete project phases, including construction/decommissioning dust and dust suppression impacts, construction/decommissioning noise impacts, construction/decommissioning lighting, construction/decommissioning introduction of invasive plants, construction/decommissioning subsidized predators, and construction/decommissioning human presence. The typical impacts associated with these activities would occur throughout operations of Covered Activities and are described further below in Section IV.7.2.1.3.

IV.7.2.1.3 Impacts of Operations and Maintenance

Dust and Dust Suppression

Dust

Operation and maintenance of renewable energy facilities can produce dust that could have negative effects on natural communities and Covered Species. Dust may be generated from bare and disturbed soils where vegetation removal, grading, and other site preparation activities have occurred. Disturbed soils are prone to wind erosion and creation of dust from ground disturbance related to human activities (Lovich and Ennen 2011). Similarly, the operation of vehicles on both graded roads and on off-road soils would produce fugitive dust emissions (Brooks and Lair 2005). Other human activities that alter hydrologic processes and soil moisture content can cause the formation of different surface land covers that are more susceptible to the creation of dust from wind erosion (Reynolds et al. 2007).

Operational activities associated with renewable energy development located in the Plan Area, including operation of vehicles on dirt roads and on off-road soils, earthwork activities for the maintenance of roadways and other facilities, as well as vegetation clearing would produce fugitive dust. However, the specific impacts and the severity of impacts from dust generation would vary considerably at the project level. The principal immediate impact is soil loss, which also results in loss of soil fertility as the most fertile layer of soil is in the topsoil. Dust-related impacts from Covered Activities would generally be less severe with distance from the dust source as the concentration of dust from dispersal and deposition of atmospheric dust decreases away from the source. The magnitude of alteration to the ground surface for development of renewable energy facilities will vary in relation to the difference in the size of foundations and amount of access roads needed for each technology. The type of activity that disturbs soils also will affect the amount of dust generated. Quantitative relationships for dust emissions from vehicle use have shown that the greater the weight of the vehicles, vehicle speed, and frequency of use would cause larger amounts of fugitive dust than operations that only require minimal vehicle activity (Goossens and Buck 2009).

Region-specific climatological and site-specific environmental variables, including precipitation patterns, topography, and wind speed, also influence the amount of dust transport resulting from otherwise similar activities. Areas of consistently high wind speeds caused by topographic features may result in larger amounts of fugitive dust from naturally occurring and disturbed soils than areas with lower wind speeds on average (Reynolds et al. 2007). The type of land surface and composition of soils also can change the potential for dust emissions resulting from both naturally occurring wind erosion and human disturbance. Silt, clay, and desert pavement surface have been shown to create

higher dust emissions when disturbed by vehicles, while lower emissions have been found to occur from vehicle disturbance of uncrusted sandy surfaces, gravel, and bedrock (Goossens and Buck 2009). Additionally, due to surface evaporation of groundwater wet playas in the Mojave Desert have been found to create soft surfaces prone to wind erosion, while dry playas can create hard-packed crusts that produce less dust from wind erosion (Reynolds et al. 2007).

These region-specific environmental factors may also dictate the location and type of effects that result from dust. Different environmental factors such as prevailing winds may transport fugitive and concentrate its effects in one particular compass direction, while higher precipitation patterns can concentrate deposition of atmospheric dust in particular locations through rainwater. Contrasting land features can also result in varying dust deposition and dust effects. Mountaintop and bench landforms that have smooth surfaces and gentle slopes retain less dust than mountain-flank and mountain-base landforms that have rough surfaces and microsites between surface clasts (Hirmas and Graham 2011). Furthermore, appropriately selected dust suppressants (discussed earlier and further below) can effectively reduce the amount of dust generated by human activities and exposed soils (Beighley et al. 2009). The application of dust suppressants is a common management practice for renewable energy development. The extent to which dust suppressants are applied, their effectiveness and potential impacts in site-specific environments may also be different for similar Covered Activities.

Human activities that disturb soils can directly emit dust and create disturbed soils that are susceptible to wind erosion, which can cause direct physical effects to plants including root exposure, burial, abrasion of plant tissue, and leaf stripping. These injuries have been shown to lead to reduced plant growth and mortality. Soil erosion from wind and human activities can affect biogeochemical processes, including plant germination that relies heavily on nutrients and water located in the topsoil. Deposition of fugitive dust from wind erosion or human activities also reduces photosynthesis and net primary productivity and can alter water usage by Mojave Desert shrubs (Lovich and Ennen 2011). Increased dust emissions from Covered Activities can affect sensitive native plant species biogeochemically, thus reducing their environmental fitness and creating conditions that enhance the growth of more robust invasive plant species. At the natural community level, the effects of dust as a result of Covered Activities could result in rapid changes in ecosystem structure from reduced soil fertility and net primary productivity.

Dust Suppression

The application of dust suppressants is a standard industry management practice to reduce fugitive dust as the consequence of operation and maintenance (and construction) activities at renewable energy project sites. The application of dust suppressants includes

water spraying and the use of chemical or biochemical agents, would be undertaken on an as needed basis and is included as a Covered Activity in the Plan. Typical dust suppressants include application of water, salts and brines, organic nonpetroleum products, synthetic polymers, organic petroleum, electrochemical substances, clay additives, and biologically generated polymers as well as mulch and fiber mixtures to exposed soils (Lovich and Ennen 2011).

The type and amount of dust suppressants used varies depending on technology type, amount of exposed soils, type of activities occurring on exposed soils, and other climatological considerations. Some suppressants such as water and magnesium chloride have limited effectiveness in desert ecosystems. Additionally, the little publicly available research has been equivocal in identifying specific concerns on the use of dust suppressants due to the high amount of variability associated with site conditions, chemical composition of dust suppressants, and application techniques (Piechota et al. 2004). These same factors can also influence the range and intensity extent of dust suppressant effects after suppressant application. Erosion from stormwater runoff can transport dust suppressants applied to exposed soils. The effects of dust suppressants can extend beyond the area in which they are applied and thus potentially outside of the project area. Chemicals in surface water from dust suppressants may be released to sediment through deposition and sorption), to biota through uptake, to surface water through runoff, and into the air through volatilization. Dust suppressant chemicals in the air may subsequently be deposited on sediment and in surface water through wet or dry deposition (Steevens et al. 2007).

The use of dust suppressants may also have detrimental effects on wildlife and adjacent vegetation through potential alteration of surface hydrology. Particular dust suppressants such as synthetic polymers and organic petroleum products can affect the infiltration of water into the soils where they are applied. Increased stormwater runoff and changes to peak stormwater runoff resulting from the application of dust suppressants can change hydrologic functions in an area, modify soil erosion and deposition rates, and can alter biological resources that rely on the existing hydrologic pattern. However, dust suppressants have been shown to have a low probability of adversely affecting water quality from runoff (Beighley et al. 2009).

Increased pollutant and toxicant loads may also result in runoff. Concerns about hazardous chemicals such as vinyl acetate polymers used in dust suppressant formulations has prompted the US Army Corps of Engineers to research alternatives for soil binders such as biopolymers of sugar molecules created by fungi under laboratory conditions (Larson et al. 2012). The chemical composition of many dust suppressant formulations may not be readily available to land managers because the formulations are proprietary information. Consequently, detailed descriptions of environmental impacts from the suppressants

themselves may be difficult to characterize. Dust suppressants such as salts and brines, electrochemical substances, and organic mixtures can have subsequent environmental impacts on water and soil quality when present in sufficient quantities (Piechota et al. 2004). These potential hydrologic and chemical changes could reduce the viability of plants and wildlife in affected areas through the spread of harmful chemicals and increased salinity (Lovich and Ennen 2011; Beighley et al. 2009). The application of dust suppressants such as salts and brines can have herbicidal characteristics resulting in chemical and physical changes that can reduce vegetation. These effects vary due to the different tolerances of plants to the different chemical formulations of dust suppressants.

Ecological receptors most likely to come into contact with soil stabilizing dust suppressants are those that are immobile or have limited mobility such as plants and soil invertebrates. Lizards and other burrowing desert organisms could be exposed through inhalation of volatile compounds or through dermal contact with particles derived from the dust stabilizers (Steevens et al. 2007). Wildlife biologists have expressed concern regarding the potential long-term toxicity effects of some dust suppressants directly on sensitive species. However, the immediate impacts would be to water quality due to the increased suspended solids and chemicals from dust suppressant application that flow to water bodies and drainage areas through stormwater runoff (Lovich and Ennen 2011). The potential negative biological impacts from negative effects of increased pollutant loads and degradation of water quality resulting from application of dust suppressants would primarily be to fish Covered Species, and to wetland and riparian natural communities that support several Covered Species. The scant research to date has shown that there is a low probability of dust suppressants adversely impacting water quality (Beighley et al. 2009). Generally, land managers have high uncertainty about the types and intensity of impacts from dust suppressants.

Fire and Fire Management

Fire

The majority of plant communities within the Plan area are not fire adapted. The desert scrub communities of the Mojave and Colorado deserts are adapted to less frequent, lower intensity fires. Fire was historically uncommon in these regions (Brooks and Esque 2002), and the native vegetation types exhibit generally low productivity and fuel levels, with fire fuels derived primarily from winter annuals (Brooks and Minnich 2006). Consequently, desert scrub communities are naturally slow to recover from fire episodes and are more vulnerable to proliferation of non-native grasses that, themselves, can create a positive feedback loop of increasing fire frequency and intensity, resulting in significant and potentially permanent community type conversion (Brooks and Chambers 2011). In contrast, chaparral, and to a lesser extent forest communities in the Plan area, are adapted

to periodic fires that remove senescent biomass, induce new growth, and induce the growth of dormant seeds and plants (Hanes 1971; Keely and Zedler 1978). Such communities are relatively fire resilient, providing the disturbance is not too frequent, because their dominant woody vegetation can quickly recover, overtop, and out-compete invasive grasses (Brooks and Chambers 2011).

The response of each group of communities may be qualitatively different to increased fire frequency and/or intensity. Desert scrub and other desert communities may take decades to recover, or may enter into a fire/grass cycle, whereby non-native grasses colonize an area and provide the fuel necessary for the initiation and propagation of further fires in which alien species outcompete natives species (D'Antonio and Vitousek 1992, cited in Brooks and Chambers 2011). Conversely, chaparral communities can quickly exhibit regrowth of native species, although they too are susceptible to invasive non-natives if increasingly subjected to frequent and/or intense fires. The introduction of non-native plants that rapidly colonize newly cleared land may affect the successional cycle of both fire-adapted and fire-sensitive communities, leading to permanent community conversion.

Flammable invasive annual plants have become established in much of the southwestern deserts, and coupled with increased anthropogenic ignitions, fire has become more common in the deserts and has adversely affected wildlife (Esque et al. 2003). Fire-caused conversion of dominant vegetation communities can drastically affect plant and animal habitats and can adversely affect the distribution and abundance of many species, including Covered Species that are specifically adapted to desert ecosystems (Lovich and Ennen 2011).

Fire Management

Fire breaks are used in limited cases to maintain defensibility of facilities in certain fire-prone areas. Such activities are usually in areas with high fuel load vegetation communities such as chaparral and woodland communities. Generally, fire breaks have not been required around the disturbance footprint of renewable energy or transmission projects in desert natural communities.

Construction and maintenance of fire breaks has the potential to result in the removal of vegetation from woodland, chaparral and grassland natural communities. Such activities may introduce non-native invasive species into otherwise undisturbed native natural communities. The introduction of breaks may effectively suppress the ability of woody native plants or native grasses to outcompete invasive grasses, and consequently increase the susceptibility of these communities to invasive species. The overall susceptibility of breaks to invasive non-native species depends upon the method of clearance used in establishing and maintaining the break (Merriam et al 2006). The use of aggressive mechanical clearance methods can result in increased exposure of top soil and subsequent greater proliferation of non-native plants when compared to hand-cleared breaks.

Introduction of Invasive plants

Invasive exotic species have a significant impact on the natural communities of the California deserts. Some of the major invasive plants are saltcedar (*Tamarix ramosissima*), also known as tamarisk, Russian thistle (*Salsola iberica*), filaree (*Erodium cicutarium*), and several grass species including split grass (*Schismus* spp.) and bromes (*Bromus* spp.) (Brown and Minnich 1986; Hunter 1991). Invasive plants cause two problems for desert ecosystems. First, exotic annuals increase the fuel load and the frequency of fires in plant communities that are poorly adapted to fire. Second, exotic plants may induce allelopathic effects, which hinder the growth or establishment of other plant species.

Existing populated and agricultural areas may act as source populations for exotic species. Roads promote the spread and establishment of exotic plants, either via the passage of vehicles or during construction, and act as corridors of disturbed land along which exotic plants can spread into otherwise undisturbed native communities (Brooks and Lair 2005). Further, as discussed above, wildfires initiate a positive feedback loop between exotic grass invasion and changes in fire frequency, which have the potential to maintain communities dominated by exotic plants (D'Antonio and Vitousek 1992; Mack and D'Antonio 1998). The resultant plant communities, post-fire, may not support the same fauna typically found during pre-fire conditions (Saab and Powell 2005).

Wind projects may be particularly prone to introducing exotic species to otherwise natural communities. Wind projects are highly distributed, they have a branching configuration that spreads turbines and road systems across thousands of acres, resulting in a very high edge to area ratio. For which the extent of initial disturbance area may not adequately represent the impacts of future invasions by exotic plants. Disturbed areas adjacent to roadsides or in utility corridors are readily invaded, especially if the use is unmanaged regardless of the vehicle type, is inadvertently increased (Davidson and Fox 1974). The initial stages of spread away from projects such as wind farms occurs within landscape features like washes or north facing hillslopes, or in microsites (e.g. beneath perennial shrubs) where soil moisture levels are locally high. Research examining the impacts of roads has identified three zones around roads: (a) direct effects, (b) an area within which environmental gradients such as moisture develop as a consequence of roads and (c) a wider cumulative effects areas that represents the combined effects of multiple roads and areas of disturbance (Brooks and Lair 2005).

Impacts from transmission projects would be similar to wind especially where roads are established for inspection and maintenance. The construction of new roads may attract uncontrolled usage that may lead to inadvertent introduction of exotic plants. In contrast, solar and geothermal projects, while occupying large areas, have a smaller edge to area ratio, and are more densely configured. Additional edge effects, such as those described

above, though probable, would be relatively small because all operations would be confined to already disturbed areas. Further, because sites are usually fully fenced they are unlikely to attract uncontrolled OHV usage.

Noise

While noise effects from renewable energy facilities generally could have detrimental effects on Covered Species, specific noise effects are expected to vary considerably depending on factors such as noise intensity, duration (e.g., chronic or intermittent), species-specific sensitivity, the type of activities exposed to the noise, and the distance of the individual from the noise source. Further, it has been shown that some species rapidly habituate to noises that they learn do not pose a threat, which can complicate determining the severity of impacts that could result from operational noise (Pater et al. 2009). There is substantial inter-specific variation in habituation to noise and even differences among individuals of the same species. Noise-related impacts can also be confounded by other stimuli that are produced in conjunction with operational noise. For instance, it is difficult to segregate the primary cause of behavioral changes in wildlife near wind turbines due to the simultaneous introduction of operational noise and shadow-flicker.

Noise can be generated from a variety of sources associated with the operation of renewable energy facilities. The noise generated from these facilities can vary in intensity and can be caused by intermittent or constant sources depending on the type of renewable energy technology and the proximity of the facility to sensitive biological receptors (Pater et al. 2009). Vehicles used for the operation and maintenance of renewable energy facilities are typically sources of intense but intermittent noise that can result in damage to wildlife (Lovich and Ennen 2011; USFWS 2013). The operation of electrical transmission facilities can be a constant source of low-intensity corona noise (audible discharge of energy) that varies with the level of voltage and distance from the transmission facilities (Abbasi and Abbasi 2000).

Noise sources, such as the operation of mechanical equipment, can vary depending on the type of renewable energy technology being implemented. Solar thermal technologies that use wet-cooling systems would have noises generated by fans and pumps. Solar thermal technologies using dry-cooling systems would only produce noise from fans, but because of the larger size requirements of dry-cooling systems, there would typically be more noise generated from these systems associated with an increase in the number of fans (Lovich and Ennen 2011). Wind turbines also produce noise from the mechanical machinery within the wind turbine and from the movement of the rotating blades through the air (Abbasi and Abbasi 2000; Langston 2013).

The effects of industrial noise from renewable energy facilities on wildlife would vary depending on the type and proximity of the noise source. Noise expands outward from a point source through spherical spreading and is reduced from distance from the source. It is typically estimated that for every doubling of distance from a noise source that there is an approximate 6 decibel (dB) reduction in sound level (Pater et al. 2009). However, the propagation of noise is also affected by natural conditions including topography, vegetation, and climate. These environmental factors can inhibit or enhance noise propagation to varying degrees depending upon the location of the source and receptor.

Along with the general relationship of noise abatement with increasing distance from the source, it has been shown that the probability of wildlife response to noise varies as a function of distance. Most noise effects on wildlife from the operation of renewable energy facilities are expected to be on behavior, although physical damage such as hearing loss can also occur at higher noise intensities. Behavioral changes in wildlife from increased noise levels can include alternations in habitat use, activity patterns, and foraging behavior. High noise levels can also interfere with the ability of wildlife to detect important sounds that may inhibit their ability to detect predators, resulting in increased rates of predation (Abbasi and Abbasi 2000; Langston 2013). Noise interference may also affect nest site selection or abandonment and can mask biologically important sounds, including mating call behavior and territory advertisement and defense that could affect reproductive success (Pater et al. 2009).

The impact of noise will vary by species due to a variety of differences, such as the species' audible range, timing of and intensity of noise in relation to critical activities, and various other species-specific physiological and behavioral factors. Taxa expected to be particularly sensitive to noise effects from the operation of renewable energy facilities include birds during the nesting seasons when mating and nesting activities could be interrupted by noise. Smaller mammals, such as the Mohave ground squirrel, and reptiles, such the Mojave fringe-toed lizard and flat-tailed horned lizard, could be adversely directly affected by intense noise (and related vibration that could collapse burrows), and potentially subject to increased predation if noise affects their ability to detect predators (Abbais and Abbasi 2000; Lovich and Ennen 2011). Larger species such as golden eagle have been found to alter their activity patterns as a result of noise from renewable energy facilities (USFWS 2011). This could result in less available suitable habitat for foraging, as species alter their behavior and area of travel.

Light and Glare

Aviation Collision Lighting

Collision lighting would be found on wind turbines and solar towers and would act by attracting or entrapping night flying birds, and may increase their susceptibility to

collision. The distribution of wind turbines discussed above lays out the likely distribution of collision events to which collision lighting maybe a contributory factor.

Behavior and life history traits such as nocturnal foraging or night migration likely would predispose Covered Species to effects of Collision Lighting. Of the Covered Species, no bird species have known behavior or life history traits that would predispose them to be – unusually susceptible to the effects of collision lighting. It is not known if nocturnal species such as burrowing owl are affected by collision lighting. Similarly, the covered bat species do not have specific life history traits (e.g., large migrations) that make them unusually susceptible to collision lighting.

Night lighting

Impacts from light and glare can result from exposure of species to both intentional lighting necessary for operation of facilities (e.g., on-site night lighting and aircraft safety lights) and the indirect consequences of reflection, refraction, and polarized lighting effects resulting from project features such as power towers, heliostats, and solar arrays.

The effects of lighting are expected to occur during general operation of a facility. Lighting can act through various biological mechanisms and can result in greatly different effects to individual species. For example, lighting around facilities may cause disorientation of nocturnal wildlife or may attract or repel certain species (Longcore and Rich 2004). Normally diurnal predators may exploit night lighting that increases prey detectability, while nocturnal prey species may reduce their foraging activity in lighted areas (Gaston et al. 2012). Some species may be able to exploit night lighting; bats and insectivorous birds may opportunistically prey upon the insects drawn to security lighting. Other species may exhibit unusual and more risky behavior as a consequence night lighting; for example, night flying migratory birds may be attracted to aviation safety lighting on high structures such as met towers and turbines and become reluctant to fly into the dark once attracted to the lighted area (Drewitt and Langston 2008). Mechanisms affecting wildlife related to lighting are diverse and very species-specific (Perry et al. 2008; Longcore and Rich 2004; Gaston et al. 2012).

Management of security night lights and aircraft safety lights has resulted in standard practices that seek to minimize the impacts of lighting. For the purpose of analysis, it was assumed that collision-alert lighting on high structures such as turbines and towers would follow the recommendations of Gehring et al. (2009); namely, lighting would consist of white or red flashing beacons, not steady burning lights. Similarly, it was assumed that security lighting would be directed downwards and within the facility to avoid illuminating surrounding areas and to minimize the spread of lighting effects.

Other light and glare related issues are less well studied, and potential effects are more speculative. Appropriate studies are lacking, but glare could possibly disorientate a bird in flight and cause it to collide with solar energy project facilities or other objects. Also, lights could increase bird and bat collisions with structures by disorienting or attracting them to the project area (Hockin et al. 1992; Longcore et al. 2008).

Polarized light reflected from solar PV arrays has been observed to attract insects (Horváth et al. 2010), which could in turn attract insect-eating Covered Species. Further, incidental mortality data from solar projects currently under construction suggest that large areas of solar PV panels, troughs, and heliostats in the desert environment may mimic water bodies and attract migrating or dispersing water bird species. Anecdotal evidence suggests that water bird species may either collide with or become stranded in solar fields, resulting in fatalities. However, there is currently insufficient data to assess the magnitude or likely risk associated with such events.

Night lighting effects are likely to be most pronounced in areas with fewer existing rural developments, and therefore less existing light pollution; i.e., species in these areas would not have been previously exposed to night lighting. Complex topographic features such as ridges and hills may limit the reach of night lighting and limit possible effects; conversely, flat open topography may result in light being visible for a considerable distance. Covered Species that may exhibit modified behavior as a consequence of night lighting include nocturnal foragers such as burrowing owl. Owls may experience differential rates of foraging success as a consequence of lighting (Kotler et al. 1991). However, whether night lighting increases foraging success (e.g., through enhanced prey detection) or decreases foraging success (e.g., by inhibiting activity in lighted areas), at a particular site, is unknown. Other Covered Species that may be affected by night lighting include desert kit fox, which is primarily a nocturnal hunter for rabbits and small rodents; however, as with the owls, the effects of night lighting on kit fox behavior are not well understood and likely would be site-specific. Night lighting may enhance localized foraging hot spots for bats that are attracted to insect swarms around lights. The extent to which this may occur with the covered bat species is unknown, but the potential for this occurring with Townsend's big-eared bats is likely low because this species roosts and forages away from human-developed areas (Szewczak, pers. comm. 2012). Overall, most of the Covered Species that may be affected by night lighting are widespread across the Plan Area.

Predator Avoidance Behavior

The predator avoidance response of some species may lead them to avoid humans and manmade objects. For example, bighorn sheep use visual cues to assess and escape predators. As a consequence of avoidance behavior, individuals must expend energy, may suffer increased physiological stress and may reduce foraging or avoid key habitat such as

water sources. Other species that may experience behavioral changes that reduce foraging opportunities or lead to avoidance of suitable foraging habitat include burro deer, desert kit fox, and nesting bird species.

Vehicle Collision

Human disturbance may result from a variety of Covered Activities. This section discusses susceptible Covered Species in the context of specific causes of mortality, morbidity and behavioral changes that would result from human presence. Of the human disturbance issues discussed below, anecdotal evidence from project monitoring reports would suggest that vehicle collisions in particular are a distinct source of mortality within existing projects.

Vehicle collision is a source of injury and mortality for many species, and commonly reported as a source of mortality during both construction and operational activities for all types of technology. All terrestrial and avian species are at risk of vehicle collisions. Basking species such as lizards and slow-moving species such as desert tortoise are particularly susceptible to collisions and birds are susceptible when scavenging on roads.

Disease

Human presence may act as a vector for the spread of disease. This is a known issue for kit fox populations that are susceptible to canine distemper, for which domestic dogs act as a reservoir. Uncontrolled introduction of dogs to a site may introduce canine diseases to resident desert kit foxes. Recent incidents associated with construction of generation facilities near Ford Dry Lake, Blythe, demonstrate the risk posed to desert kit fox of increased anthropogenic activity in desert areas.

There is also potential for humans to spread upper respiratory tract disease (URTD) to desert tortoises by inappropriately handling or transporting the animals (Berry and Christopher 2001).

Pesticide Usage

Use of rodenticides and other pesticides may adversely affect several species directly. Mohave ground squirrel is susceptible, especially where Mohave ground squirrels forage adjacent to agricultural fields (Hafner and Yates 1983). Further predators such as burrowing owl and Swainson's hawk are inadvertently susceptible to rodenticide poisoning.

Predator Subsidization

Subsidization of predators, including provision of additional food, water, nesting/bedding material is a recognized issue associated with increased human presence in the Plan area (Boarman et al. 2006), and may include improved perching facilities and high vantage points. Generalist predators and omnivores are typically the beneficiaries of anthropogenic

inputs. Populations of species such as the common raven (*Corvus corax*) and coyote (*Canis latrans*) have increased dramatically in areas with increased human presence (Boarman et al. 2006; Fedriani et al. 2001).

In particular, Common Raven populations increased hugely over the last several decades because of resource subsidization. Increase fledging success near human developments suggests that food is the most likely resource subsidy received by common ravens. Ravens adjacent to roads (road kill) and landfills (trash) demonstrated increased fledging success (Kristan et al. 2004), and Knight et al. (1993) found significantly fewer ravens in natural areas compared to power line and highway corridors.

The release of ravens from resource constraints has resulted in dramatically increased pressure on prey species. Ravens have been implicated as contributors to declines of several threatened or endangered species (Liebezeit and George 2002), such as the snowy plover (*Charadrius alexandrinus*), sandhill crane (*Grus canadensis*), and desert tortoise (*Gopherus agassizii*; Morafka et al. 1997).

Ravens are opportunistic predators, and may prey other birds' eggs and nestlings, they are also known to prey on small and medium size mammals, amphibians, and reptiles. In particular, ravens are known to prey neonate and juvenile desert tortoises, and may be partially responsible for the current "Threatened" status (Tracy et al. 2004).

Differences in distribution of non-breeding and breeding ravens may have varied effects on prey species. Desert dwelling sub-adult and other non-breeding ravens are typically concentrated in areas with dependable food resources such as landfills. While breeding pairs are evenly distributed throughout the desert, as nest site availability and territorial behavior allows (Kristan and Boarman 2003). Non-breeding ravens should have a more concentrated effect on prey that are in the vicinity of reliable anthropogenic food resources, while the predation effects from breeding ravens as a whole is expected to be more widespread.

Many activities discussed previously e.g. collisions; road kill etc. could supplement raven diet. The degree to which identified Covered Activities supplement predator diet is poorly understood. However, raven distribution is strongly associated with human encroachment into the desert. To the extent that wind, geothermal and solar projects encroach into undisturbed desert they are likely to increase subsidized feeding opportunities for ravens as a result of their operation. Carcasses, from collision with turbines, towers and solar arrays, along with trash, and improved waters sources all increase the attractiveness of project sites to ravens. Further, roosting and nesting resources are introduced or augmented by human encroachment. Associated structures, such as buildings, and transmission poles, provide roosting and nesting opportunities that otherwise would be unavailable.

Bird Migration

The Pacific Flyway is the major migratory route for millions of waterfowl and other migratory birds running along the west coast of North America. Large numbers of birds migrate along the Pacific Flyway and either cross or overwinter within the Plan area. In the Imperial Borrego Valley subarea, the Salton Sea is a key destination and stopover for migrating birds, especially water birds. Further, the Colorado River corridor is an essential corridor on the flight from central Canada to northern Mexico, both water birds and passerines use the riparian woodland for forage and cover. However, beyond these routes, migration across the desert is highly variable are poorly understood (McKernan, pers. comm. 2013). Riparian and wetland habitats and playas throughout the desert provide corridors and refuges for migrating birds (Ruth et al. 2012).

The Salton Sea is the confluence of several migratory routes, birds from the California coast converge with birds that fly down the Central Valley and along the Colorado rivers corridor. The Salton Sea provides both an essential stopover and a destination for summering or overwintering birds (Wilson 2010). American avocet (*Recurvirostra americana*), black-necked stilt, western sandpiper (*Calidris mauri*) and long-billed dowitcher (*Limnodromus scolopaceus*) are easy to find in great numbers both in spring and fall. Open waters of the Salton Sea, the northern portions of the New and Alamo rivers, various drainage and irrigation channels, as well as managed wetlands (i.e., shallow, seasonal wetlands, open water, freshwater cattail marsh) and agricultural fields support a diverse and abundant waterfowl population, overwintering and migrating waterfowl populations. Since the Salton Sea, and the Colorado River Valley are both significant for migratory birds, interconnecting valleys like the Chuckwalla Valley form important linkages, and consequently become important migratory features in their own right. The majority of migrating birds travel along the Coachella Valley from wetlands on the coast and in California's Central Valley to the Salton Sea. However, significant numbers of birds also migrate through the Tehachapi passes or travel south along the eastern side of the Sierras before crossing the Mojave (McKernan, pers. comm. 2013). Radar studies indicate that high densities of migrating song birds crossing the west Mojave reach their highest densities in the mountain passes of the Tehachapis and around the desert water bodies when crossing the West Mojave (ACOE 2012). The passes of both the Tehachapi and the San Bernardino Mountains offer lower topographic relief that reduce the energy expenditure of migrating birds (USFWS 2013). It is at these concentration points the highest densities of birds are susceptible to collision with generation facilities.

Temporary water bodies in the Mojave act as vital stopovers and refuges for birds during desert migration. Temporary lakes, playas and desert wetlands such as Searles Lake, Koehn Lake, Harper Lake, China Lake can attract several thousand water birds when wet. Isolated wetlands associated with watercourses such as the Amargosa Wild and Scenic River and

Afton Canyon are of particular importance to migrants since the surrounding habitat is unsuitable for refueling during migration. However, rainfall and winter storms are localized, and temporary lakes may alternately be dry or wet in consecutive years. Consequently, migratory bird patterns are highly variable between years (McKernan, pers. comm. 2013). For example, at locations such as dry Ford Lake can attract substantial numbers of watersbirds in one year may be devoid of birds in the following year when the lake is dry (McKernan, pers. comm. 2013).

The numbers of birds migrating across the Mojave may also vary considerably and depend on factors such as weather, and timing of migration. Migration typically occurs in Spring and Fall. Two types of migration can be recognized, long distance migration for which collision is relatively minor risk, and daily migration, where birds forage and roost at lower elevations before traveling shorter distances. Collision risk is higher for daily migration since birds spend longer at elevation that may contain collision risks. Bird migratory behavior, both timing of daily flights and altitude is species dependent. Land birds will begin their migratory flights soon after dark and fly for several hours, with activity tailing off after midnight. By contrast, raptors and soaring migrants will not fly until mid-morning to take advantage of thermals, and waterfowl may be observed flying either day or night.

The greatest risk of collision for migratory birds is during takeoff, landing, or during foraging, while in flight they are usually too high to be affected by wind turbines, transmission lines or other generation infrastructure. Two exceptions to this would be where when migrants are funneled into high passes and in mountainous areas. Large numbers of migrants can be funneled along valleys and may cross a ridge or pass at the end of the valley at a very low height above the terrain elevation. Even in lower passes, such as San Gorgonio Pass in Riverside County, California, where there are extensive wind plant generation facilities, nocturnal migration can be funneled along the Coachella Valley. The second exception is when migrating flocks are prematurely brought down to lower altitudes by adverse weather conditions. Siting and operating facilities near the migratory routes, stopovers, and refuges described above would present the greatest hazard to migrating birds.

Collision

Sources of potential collision risk associated with energy development include overhead transmission lines, wind turbines, meteorological towers, power towers, solar photovoltaic and parabolic trough facilities panels, fencing, and open-ended fence piping and boundary markers. The following analysis focuses on the collision of wind turbines and transmission lines, while the light and glare section focuses on the collision impacts associated with power towers and photovoltaic panels.

Wind Turbines

For wind turbines, direct mortality or injury of bird and bat species may occur when individuals strike rotors, nacelles, or towers. Many studies have assessed collision and collision risk for specific wind projects, and mortality rates for California have been observed to range from 0.55 to 9.57 collisions/MW/yr, depending on the location and species affected (BLM and Kern County 2012; Loss et al. 2013). Many recent studies give mortality rates for specific projects, however, there is little standardization of methods between different studies, and consequently, considerable uncertainty over the actual rate of mortality caused by specific technology types and locations exists. Detection methods rely on the collection of carcasses, which are susceptible to detection bias related to factors such as search efficiency and carcass removal by scavengers (Matthews et al. 2013; Langston 2013; Smallwood 2013; Kitano and Shiraki 2013).

When assessing the risk posed by wind turbine operation, several factors may contribute to higher collision rates. For example, at Altamont Pass, the combination of topographical features and raptors in pursuit of prey or raptors soaring in thermals rising from slopes occupied by wind turbines contribute to a relatively high local mortality rate (Smallwood et al. 2007). Generally speaking, the highest-risk turbines are those situated on steeper slopes, in canyons, or on ridges and saddles (Drewitt and Langston 2008). Studies also indicate that high risks of collision may occur on ridge lines and slopes where deflected wind currents facilitate soaring and kiting (rapid, easy flight) behavior of some avian species. Further, saddles between hilltops may be a particular risk area because saddles can facilitate birds flying across ridges with lower energy (de Lucas et al. 2008).

Location and configuration of turbine arrays may also contribute to the risk of collision. Turbines at the ends of rows may be a higher risk to raptors than turbines in the middle of an array (Orloff and Flannery 1992; Smallwood and Thelander 2004; Smallwood et al. 2007). Further, fast and intermediate rotor blade tip speeds were associated with higher collision mortality in raptors. This result may be due to the motion smearing effect that makes the rotor tips more difficult to see at faster speeds when the retina can no longer register blade images (Hodos 2002). Other factors that may influence collision rate include turbine spacing, abandoned turbines, and land management that attracts prey or food sources (Thelander et al. 2003). Evidence assessing the risk of modern larger turbines is contradictory. Krijgsveld et al. (2009) found that each larger modern turbine represents a similar collision risk to each smaller earlier-generation turbine, while Loss et al. (2013) found that larger turbines present a greater collision risk for birds.

Different bird species are variably susceptible to collisions. Species-specific factors such as bird wing structure, flight patterns, and behavior can greatly influence collision risk. Birds with high wing loading (weight divided by wing area), relatively low maneuverability in

flight, and/or a low capability for powered flight, such as griffon vultures in Spain, have been observed to have an increased risk of collision with objects other than turbine blades (de Lucas et al. 2008, 2012).

Risk of collision may also vary both throughout the day and throughout the year, depending on species-specific behavioral patterns. Activity at dusk and dawn, display fights, pursuit and hunting flights, as well as flying in flocks have all been found to contribute to collision risk (Drewitt and Langston 2008; Krijgsveld et al. 2009). Turbines pose a greater risk if placed on migratory flyways, near regular feeding or breeding areas, or in local flight paths, such as between foraging and roosting areas (Drewitt and Langston 2008). While migrants may fly above turbines across a broad front, they may concentrate in high densities at topological features such as mountain passes where risks can be magnified. Some studies have documented the highest risks are to migratory birds (e.g., de Lucas et al. 2012), while other studies have found collision risks to local birds are considerably higher than to migratory birds (e.g., Krijgsveld et al. 2009).

Unlike birds, concern and documentation of bat mortality at wind turbines is a more recent phenomenon (Cryan and Barclay 2009). It is estimated that more bat than bird mortality occurs at wind turbines (Baerwald 2008). Bat fatalities from turbines result from both collisions and barotrauma (which occurs as a result of turbulence and pressure changes that rupture bats' lungs). Estimates to date for individual wind energy sites range from just below 1 bat collision/MW/yr to as high as 70 collisions/MW/yr, with an average published bat fatality rate of 11.6 collision/MW/yr (Arnett et al. 2008). However, standardized and well-validated methods for measuring and comparing fatality rates across sites have rarely been employed, so direct comparisons among studies and sites cannot be made.

Compared to birds, fewer studies assessing the contributory factors to bat mortality have been conducted. However, a very high proportion (between 50% and 75%) of fatalities reported in the United States are to migratory tree-roosting species. In particular, studies suggest that turbines on ridgelines, especially in heavily forested areas, may result in particularly high bat mortality (Arnett et al. 2005). Other contributing factors appear to be similar to birds; for example, fatalities per MW of generation have been observed to be lower with larger turbines than with smaller turbines (Arnett et al. 2008). The likelihood of fatalities is also linked to weather conditions, especially wind speed, which affects bat flight activity. Bats are known to restrict their flights during rain, lower temperatures, and strong winds. Studies at proposed and operating wind facilities have documented lower bat activity during high wind speeds (Arnett et al. 2008, 2010). Most mortality occurs at low wind speeds during the summer and fall. Experiments that increase turbine cut-in speeds (the speed at which the turbine first starts to rotate) have been found to reduce bat mortality by between 44% and 93%, while losing less than 1% of total turbine performance (Arnett et al. 2009).

Power Towers

Collisions with powers towers and the associated heliostats are a known hazard for avian and bat species, although the relative infrequency of these structures means there have been few studies of their impacts. McCrary et al. (1986) identified 20 species of bird including raptors that collided with towers. More recent monitoring reports (CEC 2013) have found similar evidence of collision with both towers and heliostats. Reports indicate that many different avian species are susceptible to collision with towers, with few apparent patterns. Similarly, bats are also susceptible to collision with powers towers (e.g., Vespertilionidae and Molossidae). Evidence would suggest that siting of this type of technology is crucial because post construction adaptive management would be limited.

Transmission Lines

Avian collision with power lines have been studied for several decades and is a well-established risk factor. Power lines are now often designed and constructed to reduce the likelihood of collision and electrocution. Several factors may influence the risk of collision associated with transmission lines. According to *The Avian Protection Plan Guidelines* (APLIC and USFWS 2005):

> Species-related factors include habitat use, body size, flight behavior, age, sex, and flocking behavior. Heavy-bodied, less agile birds or birds within large flocks may lack the ability to quickly negotiate obstacles, making them more likely to collide with overhead lines. Likewise, inexperienced birds as well as those distracted by territorial or courtship activities may collide with lines. Environmental factors influencing collision risk include the effects of weather and time of day on line visibility, surrounding land use practices that may attract birds and human activities that may flush birds into lines. Line-related factors influencing collision risk include the configuration and location of the line and line placement with respect to other structures or topographic features. Collisions often occur with the overhead static wire, which may be less visible than the other wires due to its smaller diameter.

The factors affecting collision hazards for transmission are site-specific and complex. For example, lines crossing between foraging and roosting areas may particularly increase the chance of collision events. Studies suggest that the majority of collisions smallest diameter wire shield wire located at the top of transmission lines (APLIC 2012; Saverno et al. 1996).

Larger species, such as raptors, are more susceptible to collision because they are less maneuverable and have large wing spans. Further, because raptors and other large aerial perching birds often perch on tall structures that offer broad outlooks for

potential prey, the design of transmission poles or towers can be a major factor in the risk of electrocution (APLIC 2006).

Collision risk is affected by the proximity of powerlines to bird take-off and landing areas. There is no recommended setback from these areas in the literature (APLIC 2012). Orientation of lines, in relation to features utilized by birds (e.g., ridgetops, saddles, and crossing river corridors), is also a factor.

During migration, birds make stopovers in their preferred habitats. When migratory birds' staging, roosting, resting, and foraging habitat are located near power lines, especially when flight approaches coincide with inclement weather, then collision risk increases (APLIC 2012).

Electrocution

Electrocution occurs when a bird is able to span between two electrified lines and create a contact, either wrist to wrist or vertically, head to foot. Electrocution can also occur when birds perched side-by-side span the distance between circuits (APLIC 2012). Current guidelines for constructing power lines have been developed to minimize the potential effects from bird strikes and electrocution (APLIC 2012). Covered species most susceptible to electrocution include the larger species such as California condor and golden eagle.

Solar Flux

Solar flux can affect any species of bird, bat, or insect that enters the airspace over the heliostat fields. The solar flux can be focused on the power tower when in operation or can also occur in the standby zones, where the heliostats are focused on "standby points" in the sky around the solar tower receiver. Temperatures in the standby zones can vary, but can be sufficient to injure birds that fly through these zones. Exposure to solar flux has the potential to result in direct and indirect effects to birds by damaging their eyes, including the loss of sight; burning or singeing feathers; compromising the molecular structure of feathers (i.e., non-visible damage); and secondary, non-visible physiological changes including elevated body temperatures or thermal stress that can lead to death. The potential for injury or death depends on a variety of factors including the size and type of bird; length of exposure; and the level of solar energy flux. The degree of risk associated with solar flux also depends on habitat use and life history traits of each bird species (McCrary et al. 1986; NFWFL 2013).

Ongoing monitoring seeks to document avian and bat mortality resulting from solar flux in Californian solar thermal projects. So far monitoring suggests that the strong light emitted by an operational tower attracts large numbers of insects, which presents two issues. First, the large numbers of insects include both sensitive species, such as migrating Monarch

butterflies, but also include large numbers of pollinators, the loss of which may affect covered plant species and natural communities. At present, there is insufficient evidence to assess the impact and make mitigation recommendations for the effects of solar flux on insects and natural communities. Second, the large numbers of insects attract insectivorous birds, bats, and their predators. Bird species susceptible to solar flux injury (i.e., feather damage) disproportionately consist of aerial insectivores such as warblers, swifts and swallows, as well as their predators; it has been proposed that power towers create and ecological trap (NFWFL 2013). An ecological trap is a behavioral response that leads animals to select habitat that negatively affects their fitness. In this case, the attractiveness of the swarming insects increases the susceptibility of insectivorous birds to solar flux injury. Finally, the number of solar flux incidents with birds may be further exacerbated by the presence of permanent water ponds nearby or with solar thermal facilities located near agriculture or other high-quality foraging areas (McCrary et al. 1986).

The foraging behaviors of Covered Species do not predispose them to higher risk of solar flux impacts. Of the Covered Species, only southwest willow flycatcher is an aerial forager. However, the southwest willow flycatcher forages within enclosed wooded territories or over open water. They are, therefore, less likely to be co-located with solar development. Thus far, there are no recorded injuries or mortality to willow flycatchers. Other Covered Species that are insectivorous include mountain plover, tricolored blackbird, and Bendire's thrasher, all of which feed at or near the ground on insects such as beetles, and grasshoppers. In principle, they may take advantage of the insect fallout resulting from power tower operation; however, there is no evidence to support this hypothesis. The risk would be lower still for riparian and wetland species (e.g., Bell's vireo, willow flycatcher, tricolored blackbird, Californian black rail, greater sandhill crane) that are rarely found away from river corridors, and for soaring birds (e.g., golden eagle, California condor) that would fly generally fly above the flux zone. However, Yuma clapper rail, are known to disperse through wide areas of the southwest, with numerous colonization events and dispersal records documented in isolated patches of suitable habitat across the Mojave-Sonoran deserts in California. These records demonstrate the dispersal capabilities of the species across long distances of hostile terrain from the nearest breeding habitat along the Colorado River and Salton Sea, into areas of potential solar-flux inducing projects as well as solar PV arrays.

Solar flux effects depend, in part, on the siting of solar thermal plants in relation to occupied or foraging habitat of avian species and the size of the heliostat field (McCrary et al. 1986), these factors vary considerably, and their assessment requires project-level and site-specific information. Given that, many solar flux impacts are inherently site-specific the most effective mitigation is by the effective siting and design of individual projects such that important bird habitat, migratory routes, and flight paths are avoided. In addition,

operational strategies that reduce the availability of water sources which attract birds to areas with solar flux would help in reducing potential impacts (McCrary et al. 1986).

The potential concentration of insects near power towers presents an opportunity for foraging bats (NFWFL 2013). Bats have been observed roosting in the condenser facility of power towers, presumably attracted by the high density of swarming insects. Although bat mortality has been recorded on power tower sites, the exact cause of death is unknown, with no evidence of singeing apparent on recovered carcasses. For bat Covered Species, their known foraging behavior does not pre-dispose them to higher risk of solar flux injury. The Pallid bat is a ground-gleaning bat that feeds extremely close to the ground and therefore unlikely to be at risk from flux injury. Whereas both the California Leaf nose bat and Townsend's big-eared bat are associated with Riparian woodlands and riparian desert washes.

Reflection and Refraction Effects

Few utility-scale photovoltaic, parabolic trough, and power tower projects are currently in operation. Limited information exists, therefore, on the potential of glare or reflection causing bird collisions at solar energy facilities. Reflection from mirrors and arrays found in solar PV and solar thermal facilities may simulate a water body attracting waterbirds traversing desert environments (McCrary et al. 1986; CEC 2013). Avian collision studies and detailed observations have documented that birds do not recognize clear or reflective glass as a barrier (Klem 2009). Overall, the biological effects of solar energy development remain largely unstudied (Lovich and Ennen 2011), and the need for additional research is apparent. The one intensive study (McCrary et al. 1986) on power tower technology documented significant avian mortality, particularly from collisions with mirrored heliostats. During the 40-week study at a 10-MW pilot power tower facility in the Mojave Desert, 70 bird fatalities were documented involving 26 species. Collisions with the reflective heliostats accounted for 81% of the fatalities, while 19% died from burns received by flying through standby points within the flux area. The study concluded that larger facilities could produce nonlinear increases in the rate of avian mortality and, when coupled with the removal of large tracts of land from biological production, could be of concern as ecological effects of a solar energy project (McCrary et al. 1986).

Recent monitoring of utility-scale photovoltaic and concentrating solar power facilities in the Plan area support the hypothesis that both birds and bats, and waterbirds in particular, are susceptible to collision with panels. Collisions of waterbirds, passerines and raptors with various project components, including solar panels, fencing, and metal posts within the panel arrays have been documented. Because birds are prone to collisions with reflective surfaces, and incidental observations have documented mortalities on numerous projects in the desert, it is expected that the utility-scale solar energy projects proposed

under the Plan will cause bird mortalities. Further, the echo-acoustic properties of flat surfaces, like solar panels, elicit behavioral response from bats that are similar to water bodies. Experiments have shown bats attempt to drink from smooth surfaces, mistaking them for water bodies (Greif and Siemers 2010). However, Russo et al. (2012) demonstrated that under field conditions, a wide variety of bats have the capacity to learn and avoid such mistakes once they gain experience with such smooth surfaces, consequently there is little evidence for a negative effect on bats.

Solar PV panels are smooth surfaces that artificially polarize light, and to insects are indistinguishable from bodies of open water (Horváth et al. 2010). This leads to maladaptive responses that result in insects swarming, or attempting to oviposit on panels. Such responses result in ecological traps where the maladapted behavior results in increased mortality and reduced fecundity of a population. Further, predators may be attracted to the swarming insects that, in turn may be subject increased injury due to collision with panels. As stated by Horváth et al. (2009) "Because the advantages of sensitivity to polarized light in some taxa are still unclear, forecasting the importance of PLP [polarized light pollution] to the survival of populations and the integrity and function of ecosystems remains largely speculative." However, while large numbers of insects may be attracted to solar panels there is currently insufficient research to determine whether this negatively impacts the populations of insect or their predators.

Water

Evaporation and Cooling Ponds

Open water ponds such as evaporation and cooling ponds may be found on sites for all types of generation and transmission facilities such as substations. Ponds may be constructed to control hydrological processes, provide site water for cleaning and washing, or as part of the cooling processes for wet-cooled solar thermal and geothermal generation.

The ponds periodically fill and evaporate, leaving standing water that can attract both resident and migratory water birds. Salt levels in the pond may become highly concentrated because of the evaporation process. Birds that drink water containing high levels of salt may succumb to salt toxicosis.

Long-term mortality data collected from existing generation facilities indicates that open ponds can pose a risk to water birds in arid environments. As documented in construction and operational monitoring reports, evaporation ponds may lure water birds to a site where they may become entangled in the exclusion netting or die from salt toxicosis. However, it is not clear to what extent this is a site-specific issue rather than an issue that could occur over a broader landscape. Mitigation to reduce mortality in such situations includes increasing the standing water level where feasible to reduce salt concentration,

and installing bird deterrents such as bird netting. However, netting often results in the inadvertent entanglement of birds.

IV.7.2.2 Impacts of the Reserve Design

The DRECP Plan-Wide Reserve Design Envelope has been developed for each alternative that is comprised of existing conservation areas, BLM LUPA conservation designations, and Conservation Planning Areas. The conservation of biological resources within existing conservation areas and BLM LUPA conservation designations and the establishment of reserve lands within Conservation Planning Areas through DRECP implementation would result in beneficial effects to the biological resources in these areas. Additionally, management and monitoring actions within Reserve Design Lands will benefit the biological resources in the reserve. Management and monitoring actions within Reserve Design Lands may also result in minor adverse effects (e.g., impacts associated with vehicular activity and human presence during monitoring) and during habitat manipulations, (e.g. short term-loss of habitat values to birds during salt cedar removal).

IV.7.2.3 Impacts of BLM Land Use Plan Decisions

Through the BLM LUPA component of the DRECP, the BLM land use plan decisions have the potential to impact, both positively and negatively, biological resources through renewable energy and transmission development on BLM-administered lands and through BLM land designations and management actions on BLM-administered lands.

IV.7.2.3.1 Impacts of Renewable Energy Development and Transmission on BLM Lands

The typical impacts from the various renewable energy and transmission technologies on BLM lands would be the same as those described above in Section IV.7.2.1. However, the specific locations in which energy and transmission development will be allowed will be driven by LUPA decisions within BLM-administered lands.

IV.7.2.3.2 Impacts of BLM Land Designations and Management Actions

As part of the reserve design for each alternative, BLM LUPA conservation designations would be established that would be managed to protect ecological, historic, cultural, scenic scientific, and recreation resources and values. These designations would also confer protections and management for biological resources and would be considered a beneficial effect. While other land uses are allowed within these areas, other uses must be compatible with the resources and values that the land designation is intended to protect.

Details on allowable uses and management within National Conservation Lands, Areas of Critical Environmental Concern, and wildlife allocations are presented in the proposed

Land Use Plan Amendment description in Volume II. Details on the goals, objectives, allowable uses, and management actions for designation are presented in the LUPA worksheets in Appendix L.

IV.7.2.4 Impacts of Natural Community Conservation Plan and General Conservation Plan

The NCCP would be administered by the CDFW, and would be applicable to the entire Plan Area. The GCP would be administered by the USFWS and would be applicable to nonfederal lands, a subset of the entire Plan Area.

IV.7.2.4.1 Natural Community Conservation Plan

The impacts of renewable energy development permitted under the NCCP would be the same as those defined for the Plan-wide impacts, including the typical impacts described in Section IV.7.2, and for each alternative described below. Conservation under the NCCP is specifically addressed for each alternative by provided conservation analyses for biological resources within the NCCP Conceptual Plan-Wide Reserve Design and within the DRECP NCCP Reserve Design.

IV.7.2.4.2 General Conservation Plan

The types of impacts resulting from renewable energy development permitted under the GCP would be the same as those defined for the Plan-wide impacts, including the typical impacts described in Section IV.7.2. However, the locations where these impacts would occur would vary by alternative. Any differences in these impacts that result from the locational differences are described for each alternative.

IV.7.3 Impact Analysis by Alternative

The following sections present impact analysis for the No Action Alternative, the Preferred Alternative, and Alternatives 1 through 4.

IV.7.3.1 No Action Alternative

The impact analysis for biological resources under the No Action Alternative is provided below.

IV.7.3.1.1 Impacts Within the Entire Plan Area in No Action Alternative

This section provides the assessment of impacts under the No Action Alternative within the same area as the DRECP.

IV.7.3.1.1.1 Impacts and Mitigation for Renewable Energy and Transmission Development in No Action Alternative

Impact Assessment

The following provides the Plan-wide assessment of impacts and mitigation for renewable energy and transmission development under the No Action Alternative. Impacts are organized by biological resources impact statement (i.e., BR-1 through BR-9). Under the No Action Alternative, renewable energy development could occur anywhere in the DRECP area that such development is not prohibited, as described in Chapter II.2. The distribution of renewable energy development and transmission under the No Action Alternative was based on past and current project siting information. Using this approach, approximately 6,286,000 acres are assumed available for solar, wind, and/or geothermal development in regions of likely development under the No Action Alternative.

Impact BR-1: Siting, construction, decommissioning, and operational activities would result in loss of native vegetation.

Table IV.7-2 shows the impacts to natural communities under the No Action Alternative. An impact summary by general community is provided below.

<u>California forest and woodlands</u>

California forest and woodlands are limited to the higher elevations in the Plan Area, primarily in the Tehachapi Mountains in Kern County and the mountains in southwest San Bernardino County.

Overall, over 1,000 acres of California forest and woodlands would be impacted under the No Action Alternative. Because California forest and woodlands are located primarily in peripheral portions of the Plan Area, impacts to these communities are limited in extent (about 1% of available California forest and woodlands).

California forest and woodlands provide habitat for the following Covered Species: Tehachapi slender salamander, golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, and bighorn sheep. Therefore, impacts to this community may have an adverse effect on these species by removing or degrading suitable habitat and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

<u>Chaparral and coastal scrubs (Cismontane scrub)</u>

Chaparrals in the Plan Area occur in the Tehachapi Mountains and at the base of the San Gabriel Mountains near Antelope Valley in the southern portion of the Plan Area. Coastal

scrubs in the Plan Area generally occur east of the Tehachapi Mountains near Mojave, in the southern portion of the Plan Area from Mountain Top Junction east of Highway 138 east to Mojave River Forks Regional Park, in the Fort Irwin area, and in scattered locations west to the Plan Area boundary.

Overall, approximately 1,000 acres of the chaparral and coastal scrubs would be impacted under the No Action Alternative. Impacts would be primarily from solar and transmission development and most impacts would be to Central and South Coastal Californian coastal sage scrub. Most impacts to chaparral and coastal scrubs would occur in the Western Mojave and Eastern Slopes subarea, but some would also occur in the Pinto Lucerne Valley and Eastern Slopes subarea.

Chaparral and coastal scrubs provide habitat for the following Covered Species: golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, Parish's daisy, and Bakersfield cactus. Therefore, impacts to this general community may have an adverse effect on these species by removing or degrading suitable habitat and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Desert conifer woodlands

The desert conifer woodlands in the Plan Area primarily occur in the Tehachapi Mountains, along the southwestern boundary of the Plan Area to the San Gabriel Mountains, in the Providence and Bullion Mountains, Kingston and Funeral Mountains, and the Clark Mountain Range. All of the desert conifer woodlands in the Plan Area are classified as Great Basin pinyon-juniper woodland.

Overall, approximately 1,000 acres of the desert conifer woodlands would be impacted under the No Action Alternative. Impacts would be primarily from solar development. Most impacts to desert conifer woodlands would occur in the West Mojave and Eastern Slopes subarea, but some would also occur in the Pinto Lucerne Valley and Eastern Slopes and Kingston and Funeral Mountains subareas.

Desert conifer woodlands provide habitat for the following Covered Species: Tehachapi slender salamander, golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, and bighorn sheep. Therefore, impacts to this general community may have an adverse effect on these species by removing or degrading suitable habitat and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Desert outcrop and badlands

Desert outcrop and badlands occur throughout much of the Plan Area, but is most prevalent in the eastern and southern portions south of the Piute Valley. All of the desert outcrop and badlands is classified as North American warm desert bedrock cliff and outcrop.

Overall, approximately 11,000 acres of the desert outcrop and badlands would be impacted under the No Action Alternative. Impacts would be primarily from solar development. Impacts to desert outcrop and badlands are widely distributed with impacts in seven of the ten subareas. However, impacts are concentrated in two subareas; the majority (69%) of impacts to desert outcrop and badlands would occur in the Cadiz Valley and Chocolate Mountains subarea and 22% would occur in the Imperial Borrego Valley subarea.

Desert outcrop and badlands provide habitat for the following Covered Species: golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, and bighorn sheep. Covered Species associated with desert scrub may also be associated with this general community. Therefore, impacts to desert outcrop and badlands may have an adverse effect on these species by removing or degrading suitable habitat and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Desert scrubs

Desert scrubs, which comprise more than 70% of the Plan Area, are distributed throughout the Plan Area. There are nine desert scrub natural communities identified in the Plan Area, but the majority of the general community on available lands is comprised of lower bajada and fan Mojavean–Sonoran desert scrub (82% or 10,830,000 acres).

Overall, approximately 95,000 acres of desert scrubs would be impacted under the No Action Alternative. Impacts would be primarily from solar development, but transmission accounts for almost 18,000 acres of impacts to desert scrub and wind accounts for over 7,000 acres of impacts to desert scrub; there are also over 500 acres of impacts from geothermal development in the Imperial Borrego Valley subarea. Most impacts would be to the most prevalent desert scrub community: lower bajada and fan Mojavean–Sonoran desert scrub. The majority of impacts to desert scrub would occur in the West Mojave and Eastern Slopes and Cadiz Valley and Chocolate Mountains subareas (57%).

Desert scrubs provide habitat for the following Covered Species: golden eagle, California condor, Bendire's thrasher, burrowing owl, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, Mohave ground squirrel, bighorn sheep, desert tortoise, flat-tailed horned lizard, Mojave fringe-toed lizard, triple-ribbed milk-vetch, alkali mariposa-

lily, desert cymopterus, Mojave tarplant, Little San Bernardino Mountains linanthus, Mojave monkeyflower, and Bakersfield cactus. Therefore, impacts to this general community may have an adverse effect on these species by removing or degrading suitable habitat and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Dunes

Dune communities are widespread in the Plan Area, and include approximately 12 systems in the Mojave Desert and lower Great Basin Desert and 4 systems in the Sonoran Desert, as well as numerous smaller dunes. The largest dune area is located in the East Mesa-Sand Hill portion of the Sonoran Desert. All the dunes in the Plan Area are classified as North American warm desert dunes and sand flats.

Overall, approximately 2,000 acres of dunes would be impacted under the No Action Alternative. Impacts would be primarily from solar development, but transmission accounts for over 500 acres of impacts to dunes; there are minimal impacts from geothermal and wind development. The majority of impacts to dunes would occur in the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, Kingston and Funeral Mountains, and Providence and Bullion Mountains subareas.

Dune communities provide habitat for the following Covered Species: Mojave fringe-toed lizard, flat-tailed horned lizard, pallid bat, California leaf-nosed bat, and Townsend's big-eared bat. Therefore, impacts to this general community may have an adverse effect on these species by removing or degrading suitable habitat and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Grasslands

Grassland communities cover just over 1% of the Plan Area but are scattered throughout the Area. They are most common in the western portion of the Plan Area, especially along the boundary from east of Bakersfield to the southern end of the San Bernardino National Forest.

Overall, approximately 4,000 acres of grassland communities would be impacted under the No Action Alternative. The majority of impacts to grassland communities (82%) would be from solar, wind, and transmission development in the West Mojave and Eastern Slopes subarea. Impacts would also occur in the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, Mojave and Silurian Valley, and Pinto Lucerne Valley and Eastern Slopes subareas.

Grassland communities provide habitat for the following Covered Species: golden eagle, burrowing owl, and mountain plover. Therefore, impacts to this community may have an

adverse effect on these species by removing or degrading suitable habitat and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Riparian

Riparian communities cover nearly 6% of the Plan Area but are scattered throughout the Area, but are most common in the southern portion of the Plan Area in the Colorado River area, in the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas, and along major drainages such as the Mojave River.

Overall, approximately 8,000 acres of riparian communities would be impacted under the No Action Alternative. The majority of impacts to riparian communities (56%) would be from solar and transmission development in the Cadiz Valley and Chocolate Mountains subarea. Impacts would also occur in the Imperial Borrego Valley, Kingston and Funeral Mountains, Mojave and Silurian Valley, Pinto Lucerne Valley and Eastern Slopes, Providence and Bullion Mountains, and West Mojave and Eastern Slopes subareas.

Riparian communities include microphyll woodlands, which are important vegetation assemblages often associated with desert washes that are comprised of the Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub natural communities. A subset of these communities would be considered groundwater-dependent vegetation (e.g., mesquite bosques). Approximately 7,000 acres of impact to microphyll woodlands and groundwater-dependent vegetation have the potential to occur under the No Action Alternative.

Riparian communities provide habitat for the following Covered Species: California black rail, Gila woodpecker, Yuma clapper rail, least Bell's vireo, southwestern willow flycatcher, western yellow-billed cuckoo, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, and Tehachapi slender salamander. In addition, species associated with desert scrub are also associated with Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub. Therefore, impacts to riparian communities may have an adverse effect on these species by removing or degrading suitable habitat and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Wetlands

Wetland communities cover nearly 5% of the Plan Area but are scattered throughout the Area, including the Owens River Valley, and around various dry lakes and playas. The largest single contributor to wetlands in the Plan Area is the open water of the Salton Sea (22% of the wetlands). Smaller, isolated wetlands also occur throughout the desert region and can be

of particular importance in that their isolation can lead to a concentration of locally endemic species such as is the case with the Amargosa Wild and Scenic River.

Overall, approximately 7,000 acres of wetland communities would be impacted under the No Action Alternative. Almost 40% of the impacts to wetland communities would be in DFAs in open water of the Salton Sea in the Imperial Borrego Valley subarea. There would also be substantial impacts to wetland communities in the West Mojave and Eastern Slopes, Kingston and Funeral Mountains, and Cadiz Valley and Chocolate Mountains subareas.

Wetland communities provide habitat for the following Covered Species: California black rail, Yuma clapper rail, California leaf-nosed bat, Townsend's big-eared bat, desert pupfish, Mohave tui chub, Owens pupfish, and Owens tui chub. In addition, species associated with desert scrub are also associated with Southwestern North American Salt Basin and High Marsh. Therefore, impacts to wetlands may have an adverse effect on these species by removing or degrading suitable habitat and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Table IV.7-2
Plan-Wide Impact Analysis for Natural Communities – No Action Alternative

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
California Forest and Woodland						
Californian broadleaf forest and woodland	72,000	400	200	—	10	600
Californian montane conifer forest	78,000	300	100	—	10	400
Chaparral and Coastal Scrub Community (Cismontane Scrub)						
Californian mesic chaparral	4,000	10	10	—	10	30
Californian pre-montane chaparral	1,000	10	0	—	0	10
Californian xeric chaparral	24,000	100	60	—	80	300
Central and south coastal California seral scrub	1,000	10	0	—	0	10
Central and South Coastal Californian coastal sage scrub	54,000	300	100	0	200	600
Western Mojave and Western Sonoran Desert borderland chaparral	24,000	60	30	—	40	100

Table IV.7-2
Plan-Wide Impact Analysis for Natural Communities – No Action Alternative

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Desert Conifer Woodlands						
Great Basin Pinyon - Juniper Woodland	287,000	800	300	—	200	1,000
Desert Outcrop and Badlands						
North American warm desert bedrock cliff and outcrop	1,613,000	9,000	200	100	2,000	11,000
Desert Scrub						
Arizonan upland Sonoran desert scrub	57,000	10	0	0	—	20
Intermontane deep or well-drained soil scrub	107,000	100	70	—	100	300
Intermontane seral shrubland	74,000	600	300	—	300	1,000
Inter-Mountain Dry Shrubland and Grassland	437,000	1,000	500	0	200	2,000
Intermountain Mountain Big Sagebrush Shrubland and steppe	76,000	400	200	—	10	600
Lower Bajada and Fan Mojavean - Sonoran desert scrub	10,830,000	61,000	6,000	500	16,000	83,000
Mojave and Great Basin upper bajada and toeslope	1,334,000	4,000	400	—	400	5,000
Shadscale - saltbush cool semi-desert scrub	281,000	2,000	300	10	500	3,000
Southern Great Basin semi-desert grassland	100	0	0	—	—	0
Dunes						
North American warm desert dunes and sand flats	281,000	1,000	10	0	600	2,000
Grassland						
California Annual and Perennial Grassland	230,000	2,000	800	0	804	4,000
California annual forb/grass vegetation	8,000	70	40	—	10	100

Table IV.7-2
Plan-Wide Impact Analysis for Natural Communities – No Action Alternative

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Riparian						
Madrean Warm Semi-Desert Wash Woodland/Scrub	697,000	2,000	80	40	600	3,000
Mojavean semi-desert wash scrub	30,000	100	60	0	70	300
Riparian	600	10	0	—	0	10
Sonoran-Coloradan semi-desert wash woodland/scrub	191,000	3,000	20	20	1,000	4,000
Southwestern North American riparian evergreen and deciduous woodland	6,000	30	10	—	10	50
Southwestern North American riparian/wash scrub	66,000	500	70	30	400	1,000
Wetland						
Arid West freshwater emergent marsh	4,000	0	0	—	0	0
Californian warm temperate marsh/seep	400	0	0	—	0	10
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	310,000	1,000	100	0	200	1,000
Open Water	209,000	2,000	200	100	1,000	3,000
Playa	78,000	30	0	0	0	40
Southwestern North American salt basin and high marsh	260,000	2,000	500	0	200	3,000
Wetland	8,000	70	20	—	30	100
Other Land Cover						
Agriculture	711,000	13,000	1,000	600	9,000	23,000
Developed and Disturbed Areas	447,000	300	60	20	60	500
Not Mapped	7,000	40	10	0	30	90

Table IV.7-2
Plan-Wide Impact Analysis for Natural Communities – No Action Alternative

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Rural	114,000	1,000	300	70	700	3,000
Total	**19,011,000**	**109,000**	**12,000**	**2,000**	**36,000**	**158,000**

[1] Available lands includes the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

Notes: Total reported acres include solar and ground-mounted distributed generation (GMDG), short-term and long-term wind impacts, geothermal project area impacts, and transmission impacts. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Rare natural communities include natural community alliances with state rarity rankings S1, S2, or S3 (critically imperiled, imperiled, or vulnerable). Of the 51 rare natural community alliances mapped in the Plan Area, 35 rare alliances have the potential to be impacted under the No Action Alternative totaling approximately 4,000 acres of impacts. Impacts to rare natural communities would be adverse and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Impact BR-2: Siting, construction, decommissioning, and operational activities would result in adverse effects to jurisdictional waters and wetlands.

Impacts to riparian and wetland natural communities could result in adverse effects to jurisdictional waters and wetlands. Under the No Action Alternative, impacts to riparian and wetland natural communities is not prohibited by existing laws and regulations, but impacts to riparian and wetland natural communities identified as jurisdictional waters and wetlands would be regulated by existing federal and state laws and regulations. Approximately 8,000 acres of riparian communities and approximately 7,000 acres of wetland communities would be impacted under the No Action Alternative. See the analysis for the loss of native vegetation provided under BR-1 for a discussion of these potential impacts. All or a portion of the estimated riparian and wetland impacts could result in adverse effects to jurisdictional waters and wetlands without avoidance, minimization and mitigation measures necessary to comply with existing federal and state laws and regulations.

Additionally playas, seeps/springs, major rivers, and ephemeral drainages are waters and wetland features that provide hydrological functions and may be determined to be jurisdictional waters and wetlands. Adverse effects to these features would have the potential to impact jurisdictional waters and wetlands.

Playa

Less than 1% (2,000 acres) of playa would be impacted by Covered Activities under the No Action Alternative. The majority of impacts would be associated with solar (1,000 acres), with 300 acres of wind impacts, 1,000 acres of transmission impacts, and 100 acres of geothermal impacts. Ecoregion subareas of potential impacts to playas include the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, Kingston and Funeral Mountains, Mojave and Silurian Valley, Pinto Lucerne Valley and Eastern Slopes, Providence and Bullion Mountains, and West Mojave and Eastern Slopes subareas.

Seep/Spring

Seeps occur within DFAs and transmission corridors and potential impacts to seep/spring have the potential to occur in the following ecoregion subareas: Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, Kingston and Funeral Mountains, Mojave and Silurian Valley, Owens River Valley, Panamint Death Valley, Pinto Lucerne Valley and Eastern Slopes, Piute Valley and Sacramento Mountains, Providence and Bullion Mountains, and West Mojave and Eastern Slopes.

Major Rivers

Major rivers occur within the Plan Area and potential impacts to major rivers under the No Action Alternative have the potential to occur to the Amargosa, Colorado, and Mojave Rivers. Impacts to major rivers would be adverse absent implementation of avoidance measures.

Ephemeral Drainages

Ephemeral drainages occur throughout the Plan Area, and some of these features could be determined to state or federal jurisdictional waters. Impacts to ephemeral drainages would likely occur under the No Action Alternative. Impacts to ephemeral drainages would be adverse absent implementation of avoidance and minimization measures.

Impact BR-3: Siting, construction, decommissioning, and operational activities would result in degradation of vegetation.

Siting, construction, decommissioning, and operation of renewable energy would result in the degradation of vegetation through the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants. The degree to which these factors contribute to the degradation of vegetation corresponds to the distribution of renewable energy development in the Plan Area that would result in dust, fire, and introduction of invasive plants or that would use dust suppressants and implement fire management. As described in Section IV.7.2.1, the extent of some of these adverse effects may occur at or beyond the source of these effects, the

project footprint, or the project area depending on the type of effect and other environmental considerations. As such, the potential adverse effects caused by these factors were analyzed based on the potential for overlap between natural community mapping and the estimated distribution of renewable energy development.

Approximately 28% of the Plan Area is assumed to be potentially available for renewable energy development under the No Action Alternative. Siting, construction, and operations of renewable energy development would not be confined to DFAs and is assumed to follow past and current development patterns, under the No Action Alternative. Therefore, the impacts from renewable energy development, including vegetation degradation from dust, dust suppressants, fire, fire management, and invasive plants, could occur anywhere not prohibited from this development. These impacts would mostly occur in the West Mojave and Eastern Slopes, Cadiz Valley and Chocolate Mountains, and Imperial Borrego Valley subareas, which would experience most of the terrestrial operational impacts. As a result, these subareas would have the greatest potential to result in the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants.

Dust and Dust Suppressants

Overall, most natural communities and plant species would be susceptible to degradation from physical damage, reduced photosynthesis, and reduced net primary productivity as a result of dust created by on-road and off-road vehicle use associated with the operation and maintenance of renewable energy facilities. Specifically, water usage by Mojave desert shrubs has been shown to be particularly affected by dust (Lovich and Ennen 2011). These natural communities are primarily affected by renewable energy development in the West Mojave and Eastern Slopes and to a lesser extent in the Cadiz Valley and Chocolate Mountains, subarea. Plant Covered Species that could also be affected by abrasion, vegetation loss, root exposure, and burial as a result of dust are prevalent near the areas anticipated for renewable energy development in the West Mojave and Eastern Slopes subarea, with a smaller distribution in the Providence and Bullion Mountains and Kingston and Funeral Mountains subareas. Therefore, considering the distribution of renewable energy development and these sensitive natural communities and plant Covered Species the West Mojave and Eastern Slopes subarea would experience the greatest magnitude of dust-related impacts. This degradation of vegetation resulting from the creation of dust during operations and maintenance of renewable energy development would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

The application of dust suppressants can result in chemical and physical changes to an ecosystem, alter hydrological function of soils and drainage areas, and increase pollutant

loads in surface water. As a result, riparian and wetland natural communities are particularly affected by the use of dust suppressants. These natural communities are most prevalent near areas of anticipated renewable energy development in the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas with smaller distributions in the West Mojave and Eastern Slopes and the Kingston and Funeral Mountains subareas. As such, these subareas would contain the largest potential amount of vegetation degradation because of dust suppressants. This vegetation degradation resulting from the use of dust suppressants during renewable energy development would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Fire and Fire Management

Anthropogenic ignitions of fires that could result from operational and maintenance activities associated with renewable energy facilities could destroy the natural communities found in the Plan Area. Desert scrub natural communities are naturally slow to recover from fire episodes and are more vulnerable to proliferation of non-native grasses that can often successfully compete with and overcome native assemblages. The addition of non-native grasses can create a positive feedback loop of increasing fire frequency and intensity, resulting in substantial and potentially long-term natural community type conversion. Within the Plan Area desert scrub natural communities would be primarily affected by renewable energy development within the Cadiz Valley and Chocolate Mountains and West Mojave and Eastern Slopes subareas.

Construction and maintenance of fire breaks and other fire management techniques would typically result in the removal of vegetation from woodland, chaparral, and grassland natural communities and can create advantageous circumstances for invasive plants to grow. Within the Plan Area the potential impacts from renewable energy development on woodland, chaparral and coastal scrubs, and grassland natural communities would be located mostly in the West Mojave and Eastern Slopes subarea. Therefore, with the distribution of renewable energy development and the location of these natural communities that are sensitive to fire management techniques during operation and maintenance activities, the primary areas of vegetation degradation would be located in the West Mojave and Eastern Slopes subarea.

The potential degradation of vegetation due to fire and fire management would vary depending on project-specific factors, such as size of the project footprint and proximity to fire prone areas. However, vegetation degradation may still result from fire and fire management as a result of renewable energy development and would require implementation of avoidance, minimization, and compensation measures to offset these impacts. Alternatively, fire management activities may have a beneficial impact on

biological resources, such as fuel load reduction activities in areas dominated by non-native invasive species (e.g., salt cedar hot spots).

Invasive Plants

The introduction of invasive plants can be caused by siting, construction, and operation of renewable energy including transportation of invasive plants on the undercarriage of vehicles, creation of disturbed areas, and other environmental changes that favor invasive plant growth. Invasive plants can degrade vegetation, including both natural communities and plant Covered Species, by increasing the fuel load and the frequency of fires in plant communities and may induce allelopathic effects that hinder the growth or establishment of other plant. As such, the most vegetation degradation caused by introduction of invasive plants are expected to be distributed through the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, West Mojave and Eastern Slopes, Kingston and Funeral Mountains, and Providence and Bullion Mountains subareas. The potential vegetation degradation effects could result from siting, construction, and operation of renewable energy facilities, and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Impact BR-4: Siting, construction, decommissioning, and operational activities would result in loss of listed and sensitive plants; disturbance, injury, and mortality of listed and sensitive wildlife; and habitat for listed and sensitive plants and wildlife.

The majority of impacts to plant and wildlife species and their habitat under the No Action Alternative would occur in the Imperial Borrego Valley, West Mojave and Eastern Slopes, and Cadiz Valley and Chocolate Mountains subareas. However, there would also be substantial impacts to plant and wildlife species and their habitat in the Kingston and Funeral Mountains, Mojave and Silurian Valley, and Providence and Bullion Mountains subareas. Table IV.7-3 provides the Plan-wide impact analysis for Covered Species habitat.

Renewable energy development in the West Mojave and Eastern Slopes subarea would mostly be from solar development, but would also include impacts from wind and transmission development. Typical impacts from these Covered Activities on plant and wildlife species and their habitat is described in Section IV.7.2. This subarea provides suitable habitat for amphibians and reptiles that would be impacted, including Agassiz's desert tortoise, Mojave fringe-toed lizard, and Tehachapi slender salamander. Suitable habitat for several bird Covered Species would be impacted in the West Mojave and Eastern Slopes subarea, including Bendire's thrasher, burrowing owl, California condor, golden eagle, least Bell's vireo, mountain plover, southwestern willow flycatcher, Swainson's hawk, tricolored blackbird, yellow-billed cuckoo and Yuma clapper rail. Suitable habitat for bighorn sheep, California leaf-nosed bat, Mohave ground squirrel, pallid bat, and Townsend's big-eared bat would be impacted in this subarea. Suitable habitat for

the following plant species would be impacted in the West Mojave and Eastern Slopes subarea: alkali mariposa-lily, Bakersfield cactus, Barstow woolly sunflower, desert cymopterus, Mojave monkeyflower, Mojave tarplant, and Owens Valley checkerbloom.

Renewable energy development within the Cadiz Valley and Chocolate Mountains subarea would be primarily from solar energy development, but would also include impacts from transmission. Impacted suitable habitat would be mostly desert scrub (60%) in this subarea. The Cadiz Valley and Chocolate Mountains subarea provides suitable habitat for amphibians and reptiles, including Agassiz's desert tortoise, flat-tailed horned lizard and Mojave fringe-toed lizard that would be impacted. Impacts would occur to the following covered bird species in this subarea: Bendire's thrasher, burrowing owl, California black rail, Gila woodpecker, golden eagle, greater sandhill crane, least Bell's vireo, mountain plover, southwestern willow flycatcher, western yellow-billed cuckoo, and Yuma clapper rail. Suitable habitat would be impacted for all Covered mammals in the Cadiz Valley and Chocolate Mountains subarea, except for Mohave ground squirrel.

Renewable energy development within the Imperial Borrego Valley subarea would be primarily from solar energy and transmission development, but would also include impacts from wind and geothermal development. Impacts in this subarea would be primarily to land covers other than natural communities, which provide limited suitable habitat for Covered Species. However, impacts would also occur to desert outcrop and badland, desert scrub, riparian and wetland communities. The Imperial Borrego Valley subarea provides suitable habitat for Agassiz's desert tortoise and flat-tailed horned lizard that would be impacted. Impacts would occur to suitable habitat for the following covered bird species in this subarea: Bendire's thrasher, burrowing owl, California black rail, Gila woodpecker, golden eagle, greater sandhill crane, least Bell's vireo, mountain plover, southwestern willow flycatcher, Swainson's hawk, tricolored blackbird, and Yuma clapper rail. Impacts to suitable habitat for desert pupfish, the only fish species with suitable habitat in this subarea, would be minimal (300 acres). Only 700 acres of impacts would occur to bighorn sheep mountain habitat in this subarea. Impacts to suitable habitat for other covered mammals species would occur for California leaf-nosed bat, pallid bat, and Townsend's big-eared bat. Only two covered plant species, flat seeded spurge and little San Bernardino Mountains linanthus, would have minimal impacts (10 acres) to suitable habitat in the Imperial Borrego subarea.

The only Covered amphibian or reptile in the Kingston and Funeral Mountains subarea with suitable habitat that would be impacted is the Agassiz's desert tortoise and no Covered fish suitable habitat would be impacted in this subarea. There is suitable habitat for several bird Covered Species in the Kingston and Funeral Mountains subarea that would be impacted, including Bendire's thrasher, burrowing owl, golden eagle, Least Bell's vireo, southwestern willow flycatcher, and western yellow-billed cuckoo. Suitable habitat for

bighorn sheep, California leaf-nosed bat, pallid bat, and Townsend's big-eared bat would be impacted in this subarea.

In the Mojave and Silurian Valley subarea suitable habitat for the following Covered Species would be impacted under the No Action Alternative: Agassiz's desert tortoise, Mojave fringe-toed lizard, Bendire's thrasher, burrowing owl, golden eagle, Least Bell's vireo, Swainson's hawk, tricolored blackbird, western yellow-billed cuckoo, bighorn sheep, Mohave ground squirrel, California leaf-nosed bat, pallid bat, Townsend's big-eared bat, and Mojave monkeyflower.

In the Providence and Bullion Mountains subarea, the following Covered Species would be impacted: Agassiz's desert tortoise, Mojave fringe-toed lizard, burrowing owl, golden eagle, Least Bell's vireo, tricolored blackbird, western yellow-billed cuckoo, bighorn sheep, California leaf-nosed bat, pallid bat, and Townsend's big-eared bat.

Impacts to plant and wildlife species and their habitat would be adverse and would require implementation of avoidance, minimization, and compensation measures to offset these impacts consistent with existing applicable laws and regulations.

Table IV.7-3
Plan-Wide Impact Analysis for Species Habitat – No Action Alternative

Species	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Amphibian/Reptile						
Agassiz's desert tortoise	9,830,000	52,000	6,000	40	9,000	67,000
Flat-tailed horned lizard	753,000	9,000	900	700	5,000	15,000
Mojave fringe-toed lizard	1,097,000	13,000	40	—	5,000	18,000
Tehachapi slender salamander	48,000	300	100	—	10	400
Bird						
Bendire's thrasher	2,140,000	6,000	500	100	1,000	7,000
Burrowing owl	5,264,000	42,000	8,000	1,000	21,000	72,000
California black rail	197,000	2,000	200	100	2,000	4,000
California condor	1,240,000	8,000	4,000	—	3,000	14,000
Gila woodpecker	106,000	900	80	60	400	1,000
Golden eagle – foraging	6,672,000	33,000	2,000	30	7,000	43,000
Golden eagle – nesting	4,427,000	13,000	2,000	10	1,000	16,000
Greater sandhill crane	617,000	11,000	700	600	8,000	21,000
Least Bell's vireo	226,000	900	200	10	200	1,000

Table IV.7-3
Plan-Wide Impact Analysis for Species Habitat – No Action Alternative

Species	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Mountain plover	828,000	14,000	2,000	600	9,000	25,000
Southwestern willow flycatcher	317,000	2,000	400	100	2,000	5,000
Swainson's hawk	1,458,000	10,000	3,000	300	6,000	20,000
Tricolored Blackbird	271,000	2,000	1,000	10	1,000	5,000
Western yellow-billed cuckoo	152,000	700	70	—	200	1,000
Yuma clapper rail	51,000	300	20	20	300	700
Fish						
Desert pupfish	8,000	100	20	10	100	300
Mohave tui chub	300	0	0	—	—	0
Owens pupfish	18,000	—	—	—	—	—
Owens tui chub	17,000	—	—	—	—	—
Mammal						
Bighorn sheep – inter-mountain habitat	3,809,000	18,000	700	—	2,000	20,000
Bighorn sheep – mountain habitat	6,648,000	18,000	500	40	2,000	21,000
California leaf-nosed bat	7,135,000	48,000	500	400	15,000	64,000
Mohave ground squirrel	2,403,000	10,000	5,000	—	2,000	17,000
Pallid bat	16,385,000	84,000	9,000	800	23,000	116,000
Townsend's big-eared bat	14,651,000	80,000	8,000	700	22,000	110,000
Plant						
Alkali mariposa-lily	119,000	1,000	500	—	300	2,000
Bakersfield cactus	278,000	2,000	900	—	400	3,000
Barstow woolly sunflower	154,000	1,000	600	—	100	2,000
Desert cymopterus	205,000	1,000	600	—	60	2,000
Little San Bernardino Mountains linanthus	282,000	300	30	0	30	400
Mojave monkeyflower	160,000	200	100	—	100	500
Mojave tarplant	265,000	1,000	500	—	200	2,000
Owens Valley checkerbloom	147,000	0	0	—	0	10
Triple-ribbed milk-vetch	7,5218,000	20	—	—	0	20

[1] Available lands includes the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100;

values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For Agassiz's desert tortoise, desert tortoise important areas have been identified that include tortoise conservation areas (TCAs), desert tortoise linkages, and desert tortoise high priority habitat (see desert tortoise BGOs in Appendix C). Table IV.7-4 provides an impact analysis for these desert tortoise important areas, organized by desert tortoise Recovery Units: Colorado Desert, Eastern Mojave, and Western Mojave. Within the Colorado Desert Recovery Unit, 29,000 acres of TCAs, linkage habitat, and high priority habitat would be impacted under the No Action Alternative. Within the Eastern Mojave Recovery Unit, 12,000 acres of desert tortoise important areas would be impacted under the No Action Alternative. Within the Western Mojave Recovery Unit, 21,000 acres of TCAs and linkage habitat would be impacted under the No Action Alternative. Existing federal and state regulations would require avoidance, minimization, and compensation for impacts to this federal and state listed species that would likely reduce the impacts reported here; however, these impacts to desert tortoise important areas would be adverse and would require mitigation

Table IV.7-4
Plan-Wide Impact Analysis for Desert Tortoise – No Action Alternative

Recovery Unit	Reserve	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Colorado Desert	High Priority Habitat	387,000	7,000	—	300	8,000
	Linkage	469,000	5,000	—	20	5,000
	TCA	3,130,000	10,000	—	6,000	17,000
Colorado Desert Total		*3,985,000*	*23,000*	—	*7,000*	*29,000*
Eastern Mojave	Linkage	784,000	8,000	—	—	8,000
	TCA	2,095,000	4,000	—	—	4,000
Eastern Mojave Total		*2,880,000*	*12,000*	—	—	*12,000*
Western Mojave	Linkage	1,206,000	11,000	800	2,000	14,000
	TCA	2,313,000	4,000	2,000	2,000	8,000
Western Mojave Total		*3,519,000*	*15,000*	*3,000*	*3,000*	*21,000*
Total		**10,384,000**	**49,000**	**3,000**	**10,000**	**62,000**

[1] Available lands includes the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. There are no impacts from geothermal development to desert tortoise recovery units under the No Action Alternative. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are

provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For golden eagle, a territory-based analysis was conducted (see methods and results in the Chapter IV.7 portion of Appendix R2). Using the golden eagle nest database, golden eagle territories were identified and individually buffered by 1 mile (representing breeding areas around known nests) and 4 miles (representing use areas around known nests). From the 420 nest locations known from the Plan Area, a total of 161 territories were identified in available lands of the Plan Area. Under the No Action Alternative, 63 territories have nests in or within 1 mile of the area available for renewable energy and transmission development under the No Action Alternative, and the breeding areas of these territories could be impacted by renewable energy and transmission development depending on the siting of specific projects. Under the No Action Alternative, 105 territories have nests in or within 4 miles of the area available for renewable energy and transmission development under the No Action Alternative, and the use areas of these territories could be impacted by renewable energy and transmission development depending of the siting of specific projects. Existing laws and regulations would require avoidance, minimization, and compensation for any take of golden eagles.

For bighorn sheep, bighorn sheep mountain habitat and intermountain (linkage) habitat have been identified in the Plan Area. Under the No Action Alternative, approximately 21,000 acres of mountain habitat and 20,000 acres of intermountain habitat would be impacted. Existing federal and state regulations would require avoidance, minimization, and compensation for impacts to this federal and state listed species.

For Mohave ground squirrel, Mohave ground squirrel important areas have been identified that include key population centers, linkages, expansion areas, and climate change extension areas (see Mohave ground squirrel BGOs in Appendix C). Table IV.7-5 provides an impact analysis for these Mohave ground squirrel important areas. Under the No Action Alternative, approximately 3,000 acres of Mohave ground squirrel key population centers would be impacted and 5,000 acres of impact would occur in climate change extension areas. A total of 1,000 acres of impact to linkage and expansion areas would occur under the No Action Alternative. Existing federal and state regulations would require avoidance, minimization, and compensation for impacts to this state listed and BLM sensitive species that would likely reduce the impacts reported here; however, these impacts to Mohave ground squirrel would be adverse and would require mitigation.

Table IV.7-5
Plan-Wide Impact Analysis for Mohave Ground Squirrel – No Action Alternative

Mohave Ground Squirrel Important Area Type	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Key Population Center	508,000	2,000	900	200	3,000
Linkage	384,000	700	400	—	1,000
Expansion Area	224,000	200	100	—	300
Climate Change Extension	552,000	3,000	1,000	400	5,000
Total	**1,668,000**	**6,000**	**3,000**	**700**	**9,000**

[1] Available lands includes the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Lands.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. There are no impacts from geothermal development on Mohave ground squirrel important areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

USFWS-designated critical habitat occurs within the Plan Area (excluding military, Open OHV Areas, and tribal lands) for the following Covered Species:

- Approximately 4,143,000 acres desert tortoise
- Approximately 6,000 acres southwestern willow flycatcher, including the Amargosa River, Mojave River, and Willow Creek units
- Approximately 800 acres for desert pupfish, including the Carrizo Wash, Fish Creek Wash, and San Felipe Creek units
- Approximately 2,000 acres for Parish's daisy in the Northeast Slope unit.

Although the Peninsular bighorn sheep Distinct Population Segment (DPS) is not a Covered Species, approximately 47,000 acres of critical habitat for the Peninsular bighorn sheep DPS also occurs in the Plan Area (excluding military, Open OHV Areas, and tribal lands) in the Carrizo Canyon and South Santa Rosa Mountain units.

Under the No Action Alternative, a total of approximately 26,000 acres of impact to desert tortoise critical habitat would have the potential to occur, including 16,000 acres in the Chuckwalla unit, 4,000 acres in the Fremont-Kramer unit, 2,000 acres in the Ivanpah unit, 700 acres in the Ord-Rodman unit, 200 acres in the Pinto Mountain unit, and 2,000 acres in the Superior-Cronese unit. For desert pupfish, approximately 5 acres of impact to critical habitat would occur under the No Action Alternative including 1 acre in the Carrizo Wash and 4 acres

in the San Felipe Creek units. No impact to Parish's daisy critical habitat would occur under the No Action Alternative. Under the No Action Alternative, approximately 30 acres of impact to the Mojave River critical habitat unit for southwestern willow flycatcher would have the potential to occur. For the Peninsular bighorn sheep DPS, approximately 100 acres of impact to designated critical habitat would have the potential to occur under the No Action Alternative.

Siting, construction, and operation of renewable energy could result in the potential disturbance, injury, and mortality of listed and sensitive wildlife from noise, predator avoidance behavior, as well as light and glare. The degree to which these factors contribute to the disturbance of sensitive wildlife corresponds to the distribution of renewable energy development in the Plan Area that would result in noise, predator avoidance behavior, or light and glare. As described in Section IV.7.2.1, the extent of some of these effects may exist at or beyond the source of these effects, the project footprint, or the project area depending on the type of effect and other environmental considerations. As such, the adverse effects caused by these factors are estimated to by the overlap between the location of sensitive wildlife, and the likely distribution of renewable energy development across subareas.

Approximately 28% of the Plan Area is assumed to be potentially available for renewable energy development under the No Action Alternative. Siting, construction, and operations of renewable energy development would not be confined to DFAs and is assumed to follow past and current development patterns, under the No Action Alternative. Therefore, the impacts from renewable energy development, including the disturbance of wildlife from the creation of noise, predator avoidance behavior, as well as light and glare, could occur anywhere not prohibited from this development. These impacts would mostly occur in the West Mojave and Eastern Slopes, Cadiz Valley and Chocolate Mountains, and Imperial Borrego Valley subareas, which would experience most of the terrestrial operational impacts. As a result, these subareas would have the greatest potential to create noise, predator avoidance behavior, and light and glare resulting in disturbance of sensitive wildlife.

Noise

Birds during the nesting seasons are expected to be particularly sensitive to noise effects from the use of mechanical equipment and vehicles associated with the operation and maintenance of renewable energy facilities. For bird Covered Species the Imperial Borrego Valley, West Mojave and Eastern Slopes, and Cadiz Valley and Chocolate Mountains subareas are the subareas expected to be primarily affected. Smaller mammals such as the Mohave ground squirrel and reptiles like the Mojave fringe-toed lizard and flat-tailed horned lizard could be adversely affected by intense noise (and related vibration that could collapse burrows), and potentially subject to increased predation if noise affects their ability to detect predators. Effects on the habitat for these Covered Species mostly occurs in

the West Mojave and Eastern Slopes, Mojave and Silurian Valley, and Cadiz Valley and Chocolate Mountains subareas. As such, the disturbance of wildlife from noise would predominantly occur in the West Mojave and Eastern Slopes, Mojave and Silurian Valley, and Cadiz Valley and Chocolate Mountains subareas, and to a lesser extent in the as well as the Imperial Borrego Valley subarea.

The magnitude and extent of adverse noise effects on wildlife would depend on site-specific factors including the distance of the wildlife from the noise source. Appropriate siting and design of renewable energy development away from wildlife habitat would reduce potential noise-related impacts. However, disturbance of wildlife may still result from noise caused by renewable energy development and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Predator Avoidance Behavior

Different wildlife species may have varying sensitivities to predator avoidance behavior and may experiences different magnitudes of responses to renewable energy development. Desert bighorn sheep use visual cues to assess and escape predators and may not utilize foraging habitat or water sources in proximity to renewable energy development. In addition, nesting bird species may experience behavioral changes that reduce foraging and breeding opportunities or lead to avoidance of suitable foraging habitat. These wildlife species are spread throughout the Plan Area; however, the greatest amount of renewable energy terrestrial operational impacts would be located in the West Mojave and Eastern Slopes, Cadiz Valley and Chocolate Mountains, and Imperial Borrego Valley subareas. Wildlife disturbance resulting from predator avoidance behavior caused by renewable energy development would require the implementation of avoidance, minimization, and compensation measures to offset these impacts.

Light and Glare

Light and glare created by security lighting and reflective materials at renewable energy facilities can alter wildlife behavior including foraging, migration, and breeding. However, lighting can act through various biological mechanisms and can result in greatly different effects to individual species including diurnal predators, such as bats and insectivorous birds, which may exploit night lighting that increases prey detectability. Solar projects would produce increased levels of glare due to the large amount of reflective panel or heliostat surfaces and would have greater effects on wildlife than other renewable energy technologies. Potential adverse effects associated with light and glare from solar projects, including solar flux and bird collisions from the lake effect are analyzed in BR-9.

Assuming full build out of the renewable energy generation and transmission under the No Action Alternative, terrestrial operational impacts from renewable energy development

would mostly occur in the West Mojave and Eastern Slopes, Cadiz Valley and Chocolate Mountains, and Imperial Borrego Valley subareas. Similarly, impacts from solar projects throughout the Plan Area would primarily occur in the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, and West Mojave and Eastern Slopes subareas.

Impacts to habitat for bats from renewable energy development would mainly be located in the Cadiz Valley and Chocolate Mountains subarea. Migratory birds that fly during the night may be attracted to aviation safety lighting on high structures such as met towers and turbines and become reluctant to fly into the dark once attracted to the lighted area. For bird Covered Species the Imperial Borrego Valley, West Mojave and Eastern Slopes, and Cadiz Valley and Chocolate Mountains are the subareas where adverse effects from light and glare are expected to be primarily occur. Therefore, considering the distribution of potential renewable energy development and impacts on habitat for species sensitive from light and glare the largest magnitude of wildlife disturbance is expected to occur in the Cadiz Valley and Chocolate Mountains and West Mojave and Eastern Slopes subareas, and to a lesser extent in the Imperial Borrego Valley subarea. Some standard industry practices are typically used to reduce lighting and glare resulting from renewable energy development. However, disturbance of wildlife would still result from light and glare caused by renewable energy development and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Non-Covered Species

Detailed habitat models were not developed for special-status species not covered by the DRECP (Non-Covered Species) identified in Volume III, Chapter III.7, Section III.7.6.4, Table III.7-57. Alternatively, impacts to Non-Covered Species were determined by evaluating the impacts to all natural communities associated with a given species using the methodology described in Section IV.1.4. The links between Non-Covered Species and associated natural communities (Table III.7-57) were derived using: (1) the actual natural communities mapped (as described in Section III.7.4 and identified on Figures III.7-3 through III.7-13) at the locations of the species' occurrences (CDFW 2013), and (2) habitat requirements for the species as described in the Baseline Biology Report (Appendix Q), and the California Wildlife Habitat Relationships species' descriptions and range maps (Zeiner et al. 1988–1990). If a discrepancy was found, such as a known riparian obligate species occurring within an upland habitat community, it was assumed that the natural community mapping was at a scale that did not capture the smaller riparian habitat. In cases such as this, the mapped natural community identified through GIS analysis was replaced in Table III.7-57 (see Section III.7.6.4) with a general habitat description as described in DRECP habitat models, if available, and range maps presented by CDFW's CWHR Program range maps (Zeiner et al. 1988–1990).

Table IV.7-6 provides a cross-reference of natural communities shared between primary Covered and Non-Covered Species. Although the modeled habitat for the Covered Species does not always directly overlap the range of Non-Covered Species requiring similar habitat, this method provides a general additional guide for determining impacts and accounting for conservation measures.

Table IV.7-6
Cross-Reference Between Natural Communities for Primary Associated Non-Covered and Covered Species

General Communities	Natural Communities	Available Lands (acres)	Primary Associated Non-Covered Species	Primary Associated Covered Species
California Forest and Woodland/ Desert Conifer Woodland	Californian Broadleaf Forest and Woodland Californian Montane Conifer Forest Great Basin Pinyon-Juniper Woodland	72,000 78,000 287,000	Coast horned lizard, grey vireo, loggerhead shrike, yellow warbler, American badger, bighorn sheep, fringed myotis, hoary bat, long-eared myotis, pocketed free-tailed bat, spotted bat, Tehachapi pocket mouse, western mastiff bat, western small-footed myotis, Amargosa beardtongue, Charlotte's phacelia, creamy blazing star, Cushenbury buckwheat, Cushenbury milk-vetch, Cushenbury oxytheca, Kern buckwheat, Piute Mountains jewel-flower, purple-nerve cymopterus, San Bernardino Mountains dudleya, short-joint beavertail cactus, Spanish needle onion, Tracy's eriastrum, Cushenbury buckwheat	Tehachapi Slender Salamander, Golden Eagle, California Condor, Pallid Bat, California Leaf-nosed Bat, Townsend's Big-eared Bat, Parish's Daisy, Bakersfield cactus
Desert Scrub/ Chaparral Communities	Arizonan upland Sonoran Desert scrub Intermontane Deep or Well-Drained Soil Scrub Intermontane Seral Shrubland Inter-Mountain	57,000 106,000 74,000	Arroyo toad, banded gila monster, Coast horned lizard, Colorado Desert fringe-toed lizard, Couch's spadefoot, rosy boa, bald eagle, bank swallow, Crissal thrasher, Ferruginous hawk, gilded flicker, grey vireo, Le Conte's thrasher, loggerhead shrike, long-eared owl, Lucy's warbler, northern harrier, yellow warbler, American	Golden Eagle, California Condor, Bendire's Thrasher, Burrowing Owl, Pallid Bat, California Leaf-nosed Bat, Townsend's Big-eared Bat, Desert Kit Fox, Mohave

Table IV.7-6
Cross-Reference Between Natural Communities for Primary Associated Non-Covered and Covered Species

General Communities	Natural Communities	Available Lands (acres)	Primary Associated Non-Covered Species	Primary Associated Covered Species
	Dry Shrubland and Grassland	437,000	badger, Arizona myotis, big free-tailed bat, bighorn sheep, cave myotis, fringed myotis, hoary bat, long-eared myotis, Palm Springs pocket mouse, pocketed free-tailed bat, spotted bat, Tehachapi pocket mouse, western mastiff bat, western small-footed myotis, western yellow bat, yellow-eared pocket mouse, Yuma myotis, Algodones Dunes sunflower, Ash Meadows gum plant, Amargosa beardtongue, bare- stem larkspur, Charlotte's phacelia, Cima milk-vetch, Coachella Valley milk-vetch, creamy blazing star, Cushenbury buckwheat, Cushenbury milk-vetch, Cushenbury oxytheca, desert pincushion, Emory's crucifixion-thorn, flat-seeded spurge, forked buckwheat, Harwood's eriastrum, Harwood's milkvetch, Inyo County star-tulip, Kelso Creek monkeyflower, Kern buckwheat, Las Animas colubrina, Lane Mountain Milk-Vetch, Mojave Desert plum, Mojave milkweed, Munz's Cholla, nine-awned pappus grass, Orcutt's woody aster, Orocopia sage, Parish's club cholla, Pierson's milk-vetch, pink fairy-duster, Piute Mountains jewel-flower, purple-nerve cymopterus, Red Rock poppy, Red Rock tarplant, Robinson's monardella, Rusby's desert-mallow, sand food,	Ground Squirrel, Burro Deer, Desert Tortoise, Flat-tailed Horned Lizard, Mojave Fringe-toed Lizard, Triple-Ribbed Milk-Vetch, Alkali mariposa-lily, Desert Cymopterus, Mojave Tarplant, Little San Bernardino Mountains Linanthus, Mojave Monkeyflower, Bakersfield Cactus, Parish's Daisy, Barstow woolly sunflower, Owens Valley checkerbloom
	Intermountain Mountain Big Sagebrush Shrubland and steppe	76,000		
	Lower bajada and Fan Mojavean–Sonoran Desert Scrub	10,859,000		
	Mojave and Great Basin Upper Bajada and Toeslope	1,333,000		
	Shadescale – Saltbush Cool Semi-Desert Scrub	279,000		
	Southern Great Basin Semi-Desert Grassland	100		
	Californian Mesic Chaparral	4,000		
	Californian Pre-Montane Chaparral	1,000		
	Californian Xeric Chaparral	24,000		
	Central and South Coastal California Seral Scrub	1,000		
	Central and South Coastal Californian	54,000		

Table IV.7-6
Cross-Reference Between Natural Communities for Primary Associated Non-Covered and Covered Species

General Communities	Natural Communities	Available Lands (acres)	Primary Associated Non-Covered Species	Primary Associated Covered Species
	coastal sage scrub Western Mojave and Western Sonoran Desert Borderland Chaparral	24,000	Sodaville milk-vetch, short-joint beavertail cactus, Spanish needle onion, Thorne's buckwheat, Tracy's eriastrum, Utah beardtongue, white bear poppy, White-margined beardstongue, Wiggin's croton, Flat-seeded spurge, Parish's phacelia, Parish's alkali grass	
Dunes/Desert Outcrop and Badlands	North American Warm Desert Bedrock Cliff and Outcrop North American Warm Desert Dunes and Sand Flats	1,613,000 230,000	Banded gila monster, barefoot gecko, Coast horned lizard, Colorado Desert fringe-toed lizard, Couch's spadefoot, rosy boa, bald eagle, bank swallow, Le Conte's thrasher, loggerhead shrike, long-eared owl, northern harrier, Amargosa vole, big free-tailed bat, bighorn sheep, cave myotis, bat, spotted bat, western mastiff bat, Yuma myotis, Algodones Dunes sunflower, Ash Meadows gum plant, Amargosa beardtongue, Amargosa niterwort, Charlotte's phacelia, Cima milk-vetch, Coachella Valley milk-vetch, creamy blazing star, desert pincushion, Emory's crucifixion-thorn, flat-seeded spurge, forked buckwheat, Harwood's eriastrum, Harwood's milkvetch, Inyo County star-tulip, Las Animas colubrina, Mojave Desert plum, Mojave milkweed, nine-awned pappus grass, Orcutt's woody aster, Orocopia sage, Palmer's jackass clover, Parish's club cholla, Pierson's milk-vetch, pink fairy-duster, purple-nerve cymopterus, Red	flat-tailed horned lizard, Mojave fringe-toed lizard, Golden Eagle, California Condor, Pallid Bat, California Leaf-nosed Bat, Townsend's Big-eared Bat, Desert Kit Fox

Table IV.7-6
Cross-Reference Between Natural Communities for Primary Associated Non-Covered and Covered Species

General Communities	Natural Communities	Available Lands (acres)	Primary Associated Non-Covered Species	Primary Associated Covered Species
			Rock poppy, Red Rock tarplant, Robinson's monardella, Rusby's desert-mallow, sand food, Spanish needle onion, Thorne's buckwheat, Utah beardtongue, white bear poppy, Wiggin's croton, Palmer's jackass clover, white-margined beardtongue, flat-seeded spurge	
Grassland	California Annual and Perennial Grassland California Annual Forb/Grass Vegetation	230,000 8,000	Coast horned lizard, American peregrine falcon, bank swallow, Ferruginous hawk, long-eared owl, northern harrier, white-tailed kite, Amargosa vole, American badger, spotted bat, Cushenbury milk-vetch, Cushenbury oxytheca, short-joint beavertail cactus	Golden Eagle, Burrowing Owl, Mountain Plover, Bendire's Thrasher, Desert Kit Fox
Riparian/ Wetlands	Madrean Warm Semi-Desert Wash Woodland/ Scrub Mojavean Semi-Desert Wash Scrub Riparian Sonoran-Coloradan Semi-Desert Wash Woodland/ Scrub Southwestern North American Riparian Evergreen and Deciduous	697,000 30,000 1,000 191,000 6,000	Arroyo toad, California red-legged frog, Coast horned lizard, Couch's spadefoot, Western pond turtle, American peregrine falcon, Arizona Bell's vireo, bald eagle, bank swallow, Crissal thrasher, gilded flicker, elf owl, Inyo California towhee, loggerhead shrike, long-eared owl, Lucy's warbler, northern harrier, redhead, vermillion flycatcher, white-tailed kite, yellow-breasted chat, yellow-headed blackbird, yellow warbler, Amargosa vole, Mojave River vole, Arizona myotis, cave myotis, fringed myotis, hoary bat, long-eared myotispocketed free-tailed bat, spotted bat, western mastiff bat, western yellow bat, Yuma myotis, Ash Meadows gum plant, Inyo	California black rail, Gila woodpecker, Yuma clapper rail, least Bell's vireo, Southwestern Willow Flycatcher, Western Yellow-billed Cuckoo, Pallid Bat, California Leaf-nosed Bat, Townsend's Big-eared Bat, burro deer, Tehachapi slender salamander, Desert pupfish, Mohave tui chub, Owens pupfish,

Table IV.7-6
Cross-Reference Between Natural Communities for Primary Associated Non-Covered and Covered Species

General Communities	Natural Communities	Available Lands (acres)	Primary Associated Non-Covered Species	Primary Associated Covered Species
	Woodland Southwestern North American Riparian/Wash Scrub Arid West Freshwater Emergent Marsh Californian Warm Temperate Marsh/Seep North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat Playa Southwestern North American Salt Basin and High Marsh Wetland	66,000 4,000 400 310,000 78,000 261,000 8,000	County star-tulip, Parish's alkali grass, Parish's phacelia, Amargosa pupfish, Amargosa speckled dace, Amargosa spring snails	Owens tui chub, Owens Valley checkerbloom
Agriculture/ Rural Land Cover	N/A	718,000	American peregrine falcon, Bank swallow, loggerhead shrike, long-eared owl, northern harrier, redhead, yellow-headed blackbird, yellow warbler, Arizona myotis, hoary bat, Tehachapi pocket mouse, western mastiff bat, western yellow bat	burrowing owl, mountain plover, greater sandhill crane, and Swainson's hawk

Table IV.7-7 provides an estimation of the impacts to natural communities associated with Non-Covered Species. While estimation of impacts to natural communities likely

overestimates the potential impacts to Non-Covered Species habitats, it provides a general range of level of impact.

Impacts to natural communities, particularly sensitive habitats such as dune communities, riparian communities, and arid west freshwater emergent marsh areas, would require implementation of avoidance, minimization, and compensation measures to offset these impacts. For some species, impacts would be minimized through avoidance of the specific natural communities required for those species, e.g., dune-, spring-, or cave-restricted invertebrates, or riparian-obligate bird or amphibian species. The total potential impact to natural communities and habitat across all technology types before application of CMAs is less than 1%, with the exception of grasslands at approximately 2.5% and agricultural/rural land cover at approximately 8% (see Table IV.7-8).

Table IV.7-7
Plan-Wide Impact Analysis for Natural Communities and Associated Non-Covered Species – No Action Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[3]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
California forest and woodland/ Desert conifer woodlands	Coast horned lizard, grey vireo, loggerhead shrike, yellow warbler, American badger, bighorn sheep, fringed myotis, hoary bat, long-eared myotis, pocketed free-tailed bat, spotted bat, Tehachapi pocket mouse, western mastiff bat, western small-footed myotis, Amargosa beardtongue, Charlotte's phacelia, creamy blazing star, Cushenbury buckwheat, Cushenbury milk-vetch, Cushenbury oxytheca, Kern buckwheat, Piute Mountains jewel-flower, purple-nerve cymopterus, San Bernardino Mountains dudleya, short-joint beavertail cactus, Spanish needle onion, Tracy's eriastrum, Cushenbury buckwheat	437,000	1,500	600	0	200	2,300	0.5%
Desert Scrub/ Chaparral Communities	Arroyo toad, banded gila monster, Coast horned lizard, Colorado Desert fringe-toed lizard, Couch's spadefoot, rosy boa, bald eagle, bank swallow, Crissal thrasher, Ferruginous hawk, gilded flicker, grey vireo, Le Conte's thrasher, loggerhead shrike, long-eared owl, Lucy's warbler, northern harrier, yellow warbler, American badger,	13,303,000	70,000	8,000	500	18,000	96,500	0.7%

Table IV.7-7
Plan-Wide Impact Analysis for Natural Communities and Associated Non-Covered Species – No Action Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[3]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	Arizona myotis, big free-tailed bat, bighorn sheep, cave myotis, fringed myotis, hoary bat, long-eared myotis, Palm Springs pocket mouse, pocketed free-tailed bat, spotted bat, Tehachapi pocket mouse, western mastiff bat, western small-footed myotis, western yellow bat, yellow-eared pocket mouse, Yuma myotis, Algodones Dunes sunflower, Ash Meadows gum plant, Amargosa beardtongue, bare- stem larkspur, Charlotte's phacelia, Cima milk-vetch, Coachella Valley milk-vetch, creamy blazing star, Cushenbury buckwheat, Cushenbury milk-vetch, Cushenbury oxytheca, desert pincushion, Emory's crucifixion-thorn, flat-seeded spurge, forked buckwheat, Harwood's eriastrum, Harwood's milkvetch, Inyo County star-tulip, Kelso Creek monkeyflower, Kern buckwheat, Las Animas colubrina, Lane Mountain Milk-Vetch, Mojave Desert plum, Mojave milkweed, Munz's Cholla, nine-awned pappus grass, Orcutt's woody aster, Orocopia sage, Parish's							

Table IV.7-7
Plan-Wide Impact Analysis for Natural Communities and Associated Non-Covered Species – No Action Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[3]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	club cholla, Pierson's milk-vetch, pink fairy-duster, Piute Mountains jewel-flower, purple-nerve cymopterus, Red Rock poppy, Red Rock tarplant, Robinson's monardella, Rusby's desert-mallow, sand food, Sodaville milk-vetch, short-joint beavertail cactus, Spanish needle onion, Thorne's buckwheat, Tracy's eriastrum, Utah beardtongue, white bear poppy, White-margined beardstongue, Wiggin's croton, Flat-seeded spurge, Parish's phacelia, Parish's alkali grass							
Dunes[3]/ Desert Outcrop and Badlands	Banded gila monster, barefoot gecko, Coast horned lizard, Colorado Desert fringe-toed lizard, Couch's spadefoot, rosy boa, bald eagle, bank swallow, Le Conte's thrasher, loggerhead shrike, long-eared owl, northern harrier, Amargosa vole, big free-tailed bat, bighorn sheep, cave myotis, bat, spotted bat, western mastiff bat, Yuma myotis, Algodones Dunes sunflower, Ash Meadows gum plant, Amargosa beardtongue, Amargosa niterwort, Charlotte's phacelia, Cima milk-vetch, Coachella Valley milk-	1,894,000	10,000	200	100	3,000	13,300	0.7%

Table IV.7-7
Plan-Wide Impact Analysis for Natural Communities and Associated Non-Covered Species – No Action Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[3]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	vetch, creamy blazing star, desert pincushion, Emory's crucifixion-thorn, flat-seeded spurge, forked buckwheat, Harwood's eriastrum, Harwood's milkvetch, Inyo County star-tulip, Las Animas colubrina, Mojave Desert plum, Mojave milkweed, nine-awned pappus grass, Orcutt's woody aster, Orocopia sage, Palmer's jackass clover, Parish's club cholla, Pierson's milk-vetch, pink fairy-duster, purple-nerve cymopterus, Red Rock poppy, Red Rock tarplant, Robinson's monardella, Rusby's desert-mallow, sand food, Spanish needle onion, Thorne's buckwheat, Utah beardtongue, white bear poppy, Wiggin's croton, Palmer's jackass clover, white-margined beardtongue, flat-seeded spurge							
Grassland	Coast horned lizard, American peregrine falcon, bank swallow, Ferruginous hawk, long-eared owl, northern harrier, white-tailed kite, Amargosa vole, American badger, spotted bat, Cushenbury milk-vetch, Cushenbury oxytheca, short-joint beavertail cactus	238,000	2,100	1,000	0	1,000	3,700	1.5%

Table IV.7-7
Plan-Wide Impact Analysis for Natural Communities and Associated Non-Covered Species – No Action Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[3]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
Riparian/ Wetlands	Arroyo toad, California red-legged frog, Coast horned lizard, Couch's spadefoot, Western pond turtle, American peregrine falcon, Arizona Bell's vireo, bald eagle, bank swallow, Crissal thrasher, gilded flicker, elf owl, Inyo California towhee, loggerhead shrike, long-eared owl, Lucy's warbler, northern harrier, redhead, vermillion flycatcher, white-tailed kite, yellow-breasted chat, yellow-headed blackbird, yellow warbler, Amargosa vole, Mojave River vole, Arizona myotis, cave myotis, fringed myotis, hoary bat, long-eared myotispocketed free-tailed bat, spotted bat, western mastiff bat, western yellow bat, Yuma myotis, Ash Meadows gum plant, Inyo County star-tulip, Parish's alkali grass, Parish's phacelia, Amargosa pupfish, Amargosa speckled dace, Amargosa spring snails	1,652,000	9,000	1,100	200	3,500	13,800	0.8%
Agriculture/ Rural Land Cover	American peregrine falcon, Bank swallow, loggerhead shrike, long-eared owl, northern harrier, redhead, yellow-headed blackbird,	825,000	14,000	1,300	1,000	10,000	26,300	3.2%

Table IV.7-7
Plan-Wide Impact Analysis for Natural Communities and Associated Non-Covered Species – No Action Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[3]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	yellow warbler, Arizona myotis, hoary bat, Tehachapi pocket mouse, western mastiff bat, western yellow bat							

1 Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
2 Solar impacts include ground-mounted distributed generation.
3 This amount assumes the loss of conservation value for all land fragmented by the well fields.

Notes: The natural community classification system is described in Chapter III.7 and follows CDFG 2012. Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

USFWS-designated critical habitat occurs within the Plan Area (excluding military, Open OHV Areas, and tribal lands) for the following Non-Covered Species:

- Approximately 1,000 acres for Amargosa nitrophila
- Approximately 4,000 acres for the Amargosa vole
- Approximately 4,000 acres for the Arroyo Toad
- Approximately 300 acres for the Ash Meadows gumplant
- Approximately 600 acres for the Cushenbury buckwheat
- Approximately 1,000 acres for the Cushenbury milk-vetch
- Approximately 100 acres for the Cushenbury oxytheca
- Approximately 14,000 acres for the Lane Mountain milk-vetch
- Approximately 3,000 acres for the Pierson's milk-vetch
- Approximately 47,000 acres for the Peninsular bighorn sheep

Under the No Action Alternative, impacts to designated critical habitat for Non-Covered Species would have the potential to occur from transmission. Specifically impacts would potentially occur to approximately 30 acres of Amargosa nitrophila critical habitat, approximately 40 acres of arroyo toad critical habitat, approximately 10 acres of Ash Meadow gumplant critical habitat, approximately 80 acres of Pierson's milk-vetch critical habitat, and 100 acres of Peninsular bighorn sheep. These calculations of impacts from transmission are the transmission corridors overlapped with designated critical habitat, thus resulting is an overestimation of actual ground disturbance.

The results of impacts on Non-Covered Species from the creation of noise, predator avoidance behavior, and light and glare would be similar to those described for the Covered Species.

Impact BR-5: Siting, construction, decommissioning, and operational activities could result in loss of nesting birds (violation of the federal Migratory Bird Treaty Act and California Fish and Game Code Sections 3503, 3503.5, 3511, and 3513).

Siting, construction, decommissioning, and operations of renewable energy and transmission projects would result in the removal of vegetation and other nesting habitat and cause increased human presence and noise that has the potential to cause the loss of nesting birds, which would be a violation of the federal Migratory Bird Treaty Act and the California Fish and Game Code. The potential loss of nesting birds resulting from these activities would be adverse without application of avoidance and minimization measures. Under existing laws and regulations, renewable energy and transmission projects would be

required to implement seasonal restrictions and other avoidance measures including pre-construction nesting bird surveys and impact setbacks determined necessary to avoid and minimize the loss of nesting birds.

Impact BR-6: Siting, construction, decommissioning, and operational activities would adversely affect habitat linkages and wildlife movement corridors, the movement of fish, and native wildlife nursery sites.

Species-specific habitat linkages and wildlife movement areas are a component of analysis conducted under Impact BR-4 above. Suitable habitat for each species includes areas of habitat linkages and wildlife movement. Analysis under BR-4 specifically incorporates habitat linkage information for desert tortoise, Mohave ground squirrel, and desert bighorn sheep. In addition to the species-specific analysis of impacts to suitable habitat supporting habitat linkages and wildlife movement for species, landscape level information on habitat linkages (i.e., Desert Linkage Network) and migratory bird movement are analyzed below.

Desert Linkage Network

Table IV.7-8 shows Plan-wide impacts to the Desert Linkage Network by ecoregion subarea anticipated under the No Action Alternative. Overall 1.1% of the Desert Linkage Network would be impacted under the No Action Alternative. The percent of the Desert Linkage Network impacted in each subarea would range from 0% for the Panamint Death Valley, Piute Valley and Sacramento Mountains, and Owens River Valley subareas to 2.7% of the Cadiz Valley and Chocolate Mountains subarea. Overall, solar would account for 69% of the impacts to the Desert Linkage Network, wind would account for 6%, and transmission would account for 25%. Geothermal would not account for any impacts under the No Action Alternative. Wind project areas would account for proportionally greater impacts in the West Mojave and Eastern Slopes subarea (31% of the total impacts in the subarea) and Pinto Lucerne Valley and Eastern Slopes subarea (17% of the total impacts in the subarea). The magnitude of impacts to the function of habitat linkages depends on site-specific factor. Impacts to Desert Linkage Network habitat linkages would be adverse and would require mitigation to avoid impacting habitat linkage function in the subareas where impacts are anticipated under the No Action Alternative.

Table IV.7-8
Plan-Wide Impact Analysis for the Desert Linkage Network – No Action Alternative

Ecoregion Subarea	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Cadiz Valley and Chocolate Mountains	890,000	16,000	—	8,000	24,000
Imperial Borrego Valley	155,000	100	—	200	300

Table IV.7-8
Plan-Wide Impact Analysis for the Desert Linkage Network – No Action Alternative

Ecoregion Subarea	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Kingston and Funeral Mountains	174,000	4,000	—	—	4,000
Mojave and Silurian Valley	510,000	10	—	1,000	1,000
Owens River Valley	19,000	—	—	—	—
Panamint Death Valley	204,000	—	—	—	—
Pinto Lucerne Valley and Eastern Slopes	272,000	200	100	300	600
Piute Valley and Sacramento Mountains	152,000	—	—	—	—
Providence and Bullion Mountains	426,000	5,000	—	200	5,000
West Mojave and Eastern Slopes	863,000	5,000	2,000	800	8,000
Total	**3,666,000**	**30,000**	**3,000**	**11,000**	**43,000**

[1] Available lands includes the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. There are no impacts from geothermal development to desert linkage network under the No Action Alternative.

The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Migratory Birds

Migration patterns across the Plan Area are discussed in the typical impacts section (Section IV.7.2.1.3) and quantification of operational impacts to avian and bat species are discussed in Impact BR-9. The following analysis focuses on the anticipated distribution of different technology types in relation to known migratory corridors and migratory resources in each subarea.

In the No Action Alternative, wind is a substantial proportion of the overall generation mix. Development would mostly be located in the West Mojave, bordering the Tehachapi and San Bernardino Mountains, impacts are most likely to occur in areas between the Tehachapi and San Bernardino passes, and the dry lakes and wetland refuges on and to the

north of Edwards AFB including Searles Lake, Koehn Lake China Lake and Harper Lake. In this alternative, no wind development is anticipated in areas adjacent to the Colorado River and wind development in the Imperial Valley would be relatively limited although it may affect wetlands and agricultural foraging lands to the south of the Salton Sea, but little else.

Solar development would be expected throughout the West Mojave and Eastern Slopes subarea. Development would occur in natural communities to the north of Edwards AFB and to east of Tehachapi Mountains as well as along both HWY 14 and HWY 395 corridors and in agricultural land surrounding Lancaster, including Antelope Valley. Development would result in a 1.8 fold increase in solar generation over baseline. Impacts would occur between key migratory features like the Tehachapi pass, and the dry lakes in the northern Mojave including Searles Lake, Koehn Lake and Harper Lake. In addition, solar development is expected in the in the Kingston and Funeral Mountain subarea, which could have indirect impacts on the Amargosa River ACEC/WSR through potential adverse effects on hydrological resources.

In the Cadiz and Chocolate Mountains subarea, the No Action alternative would lead to a 6.3-fold increase over baseline. This would result in a string of solar generation facilities along the I-10 corridor, in McCoy Valley, and in the disturbed and agricultural lands around Blythe. Development would effectively appear as a string of lakes on a known migratory linkage for birds between the Colorado River corridor, Coachella Valley and further west towards the coast. Development around the Salton Sea would, as now, be on the southern, western and eastern shores. Impacts from solar development in Imperial Borrego Valley would result in a 2.4-fold increase over baseline, and are likely to result in the direct loss of foraging habitat in the agricultural lands south of the Salton Sea. Like the I-10 corridor impacts, development would result in a landscape dotted with highly reflective facilities that mimic open water, that may lead to increased collision.

Impacts from development to migratory corridors would be adverse. Adverse impacts would require each project to implement surveying and siting as well as minimization measures to ensure reduction and avoidance of impacts. Further compensation measures may be necessary to offset adverse effects and would be implemented on a project by project basis.

Application of avoidance and minimization measures would reduce the overall impacts to migratory bird populations. However, operation and maintenance activities may adversely impact migratory birds. While it may be feasible to survey, site and monitor projects to minimize loss of habitat within the Plan Area, residual operational impacts may not be adequately mitigated through compensation strategies. For example, where the full range of the species life cycle i.e., overwintering, migration and breeding, is not within the jurisdiction of the permitting agencies, application of adequate compensation strategies may be

infeasible. Additional steps would be necessary to ensure projects do not adversely impact migratory birds within the Plan Area. After application of the mitigation measures, operational impacts on migratory birds from the No Action Alternative would be adverse and would require mitigation.

Impact BR-7: Siting, construction, decommissioning, and operational activities would result in habitat fragmentation and isolation of populations of listed and sensitive plants and wildlife.

The construction and operation of renewable energy and transmission projects can have the potential to fragment intact and interconnected landscapes resulting in isolated patches of habitat, isolated species populations, reduced gene flow, and remaining habitat that is more exposed to the edge effects of adjacent developments.

Under the No Action Alternative, siting and construction of renewable energy development would not be confined to DFAs, and the impacts of this development could occur anywhere not prohibited from such development and would follow past and current development patterns. Approximately 6,286,000 acres (28% of the DRECP Area) are assumed could be available for renewable energy development under the No Action Alternative. These areas would be subject to potential adverse habitat fragmentation effects.

Renewable energy and transmission development in remote and intact landscapes would result in adverse habitat fragmentation effects. Using the terrestrial intactness analysis for the DRECP Plan Area, approximately 60% of the areas available for development under the No Action Alternative are characterized by low or moderately low terrestrial intactness. Approximately 40% of the areas available for development under the No Action Alternative are characterized as areas with moderately high to high terrestrial intactness. Development in moderately high to high terrestrial intactness area would result in adverse habitat fragmentation and population isolation effects that would require mitigation to avoid and minimize habitat fragmentation and population isolation impacts.

Other measures of fragmentation and population isolation effects include the amount of impacts on environmental gradients. Environmental gradients are spatial shifts in physical and ecological parameters across a landscape. Environmental gradients are influenced by factors such as temperature, precipitation, wind, and solar exposure that vary with physical factors such as elevation, latitude, slope, and aspect. The impact analysis addresses four types of environmental gradients in the Plan Area: elevation, landforms, slope, and aspect.

Elevation: Under the No Action Alternative, 96% of the impacts from Covered Activities would occur below 4,000 feet, including 49% of the impacts occurring below 1,000 feet and 33% between 2,000 and 4,000 feet. As the majority of impacts occur below 4,000 feet, impacts will be greater to natural communities that occur below this elevation such as desert

scrub natural communities as compared to natural communities that occur at higher elevations. Approximately 99% of the geothermal impacts are at elevations below 1,000 feet, including 62% below sea level. Solar impacts also tend to be concentrated in the lower elevations, with 45% of impacts below 1,000 feet. Wind impacts tend to be at higher elevations, with 82% of impacts at elevations above 2,000 feet. Transmission impacts also tend to be concentrated in the lower elevations, with 93% of impacts below 3,000 feet elevation. Habitat fragmentation, population isolation and gene flow impacts would be concentrated at lower elevations, which has the potential to reduce the potential for successful species range shifts, contractions, and expansions for lower elevation Covered Species and natural communities in response to climate change. As the No Action Alternative would impact less than 1% of all available land within the Plan Area, any impacts to successful species range shifts, contractions, and expansions will be relatively minor.

Landforms: Landforms in the Plan Area include canyons/deeply incised streams, mountain tops/high ridges, open slopes, and plains. Under the No Action Alternative, the vast majority (88%) of impacts would occur to plains, with these impacts spread across the different impact types, including 67% from solar, 7% from wind, 1% from geothermal, and 24% from transmission. Habitat fragmentation, population isolation and gene flow impacts would be concentrated in plains, which has the potential to reduce the potential for successful species range shifts, contractions, and expansions for Covered Species and natural communities associated with plains in response to climate change. As the No Action Alternative would impact less than 1% of all available land within the Plan Area, any impacts to successful species range shifts, contractions, and expansions will be relatively minor.

Slope: Under the No Action Alternative, total impacts would be progressively less with increasing slope. The large majority (82%) of impacts would occur on slopes less than 5%, and 95% of impacts would occur on slopes up to 20%. On slopes less than 20%, impacts would be spread across the different impacts types, including 68% from solar, 7% from wind, 1% from geothermal, and 23% from transmission. Habitat fragmentation, population isolation, and gene flow impacts would be concentrated on slopes less than 20%, which has the potential to reduce the potential for successful species range shifts, contractions, and expansions for Covered Species and natural communities that inhabit lower slopes in response to climate change. As the No Action Alternative will impact less than 1% of all available land within the Plan Area, any impacts to successful species range shifts, contractions, and expansions will be relatively minor.

Aspect: Under the No Action Alternative, impacts would generally be well distributed among the different aspects Impacts from solar, geothermal, wind, and transmission would have similar distributions across the different aspects compared to overall impacts. By

distributing the impacts across all aspects, there is a less potential to interrupt species movement and gene flow for species that occur within any one aspect.

Impact BR-8: Construction of generation facilities or transmission lines would result in increased predation of listed and sensitive wildlife species.

Higher predator densities and hence high predation rates are a documented effect of increased human development in the Plan Area. The extent to which Covered Activities contribute to increasing predation through phenomena like predator subsidization is linked to the likely extent of Covered Activities in undisturbed parts of desert.

Agricultural landscapes in the west Mojave, Lucerne Valley and Imperial Borrego Valley, or surrounding Blythe are already disturbed, with relatively high levels of human activity that supplement predators such as ravens and coyotes, and support covered predator species such as burrowing owls and Swainson's hawk. Therefore, covered operational activities in already disturbed rural and agricultural landscapes would result in little increase in predation.

However, operation and Maintenance activities in undisturbed desert habitat are likely to disproportionately supplement predators, increase predator density and consequently increase predation rates on Covered Species. The No Action alternative would result 164,000 acres of permanent conversion of natural desert communities with 31,000 acres of impacts (16% of the total ground disturbance) within areas characterized as disturbed land cover types.

All impacts to Kingston and Funeral Mountains, Providence and Bullion Mountains would be in natural communities, and therefore more likely to increase predation rates on susceptible species in these sub-region like desert tortoise, Mojave fringe-toed lizard, and nesting birds. Much of the development in the Cadiz and Chocolate Mountains subarea, would be expected in the solar PEIS Solar Energy Zone (SEZ) adjacent to the I-10 corridor. This area may already experience increased predator densities as a consequence of human development, the additional impact of further development would therefore be attenuated. However, development in more remote parts to the subarea is likely to increase predation.

Wind and solar development in the West Mojave and Eastern Slopes and the Pinto Lucerne Valley and Eastern Slopes subareas may supplement predators in undisturbed environments including parts of the Tehachapi Mountains or areas to the north of Edwards AFB. In these areas, susceptible species would include nestlings and eggs of Covered Species like tricolored blackbird, golden eagle, as well as small amphibians like the Tehachapi slender salamander and mammals like the Mohave ground squirrel. Solar development in these subareas is likely to occur in already disturbed agricultural landscapes around Lancaster or to the west of Edwards AFB. Any development to the North of Edwards is likely to affect Mohave ground squirrel.

Typical management practices for the No Action would include the development of a Common Raven Control Plan that would reduce project activities that increase predator subsidization. Including, removal of trash and organic waste; minimize introduction of new water sources including pooling of water from dust control; removal of carcasses from bird and bat collisions; and reduction in new nesting and perching sites where feasible.

The level of impact on Non-Covered Species would be similar to that discussed for the Covered Species.

Impact BR-9: Operational activities would result in avian and bat injury and mortality from collisions, thermal flux or electrocution at generation and transmission facilities.

The impacts of operation activities on avian and bat injury and mortality are analyzed below for wind turbines, solar, and transmission.

Wind Turbine

This section summarizes the range of impacts to bird and bat species within the Plan Area that occur as a consequence of wind turbine operation. The range of collision rates calculated in Table IV.7-9 are indicative of the overall annual collision rates for all bird and bat species, not just Covered Species. The range of collision rates is estimated for the final full build-out of wind over the life of the Plan, and is based on the range of collision rates in existing published and gray literature. While it is possible to provide a range of possible collision rates, it is not feasible to estimate the collision rate for each Covered Species, but only infer the propensity for a species to be at risk from collision by the overlap between the species habitat models and the likely distribution of wind generation across the subarea

The expected distribution of wind generation in the No Action Alternative would result in 80% of all collisions risks occurring in West Mojave and Eastern slopes, and 2% of collisions could occur in Pinto Lucerne Valley and Eastern Slopes, with 17% of all collision likely to occur in Imperial Borrego Valley. Overall, the No Action Alternative would result in a median of 14,000 collisions per year for birds and 63,000 collisions per year for bats across the Plan Area.

In the No Action Alternative, development in the West Mojave and Eastern Slopes would affect Bendire's thrasher, burrowing owl, California condor, golden eagle, least Bell's vireo, mountain plover, southwestern willow flycatcher, Swainson's hawk, and tricolored blackbird. Whereas, development in the Pinto and Lucerne Valley subarea would mainly affect golden eagle territories and important Bendire's thrasher habitat. In Imperial Valley subarea development of wind facilities would disproportionately affect overwintering migratory birds such as sandhill crane and, mountain plover, as well as wetland birds like least Bell's Vireo, Yuma clapper rail, and California black rail.

Wind projects would result in adverse impacts to covered bird and bat species. Impacts from wind projects would be analyzed on a project by project basis. Wind projects would develop bird and bat management plans. Each plan would require the implementation of avoidance, minimization, and compensation measures to offset collision impacts.

Table IV.7-9
Plan-Wide Impact Analysis for Estimated Range of Collisions per Year for Birds and Bats by Subarea – No Action Alternative

Ecoregion Subarea	# Turbines	Birds (Collisions/Yr)[1]			Bats (Collisions/Yr)[1]		
		Low	*Median*	*High*	*Low*	*Median*	*High*
Cadiz Valley and Chocolate Mountains	0	—	—	—	—	—	—
Imperial Borrego Valley	462	700	2,000	9,000	900	11,000	65,000
Kingston and Funeral Mountains	0	—	—	—	—	—	—
Mojave and Silurian Valley	0	—	—	—	—	—	—
Owens River Valley	0	—	—	—	—	—	—
Panamint Death Valley	0	—	—	—	—	—	—
Pinto Lucerne Valley and Eastern Slopes	64	100	300	1,000	100	2,000	9,000
Piute Valley and Sacramento Mountains	0	—	—	—	—	—	—
Providence and Bullion Mountains	0	—	—	—	—	—	—
West Mojave and Eastern Slopes	2,194	3,000	11,000	42,000	4,000	51,000	307,000
Grand Total	**2,721**	**4,000**	**14,000**	**52,000**	**5,000**	**63,000**	**381,000**

[1] Method for estimation of annual bird and bat collision rates described in Section IV.7.1.1.2 and discussed in more detail in Section IV.7.2.1.3

Notes: The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Solar

Collision with power towers, heliostats, and solar arrays, and injury or mortality from exposure to concentrated solar flux, are all known impacts of solar generation facilities. While the nature of the impacts remain the same for all alternatives, the distribution of impacts across the Plan Area vary in relation to the anticipated quantity and location of solar facilities in each alternative.

The No Action Alternative would contain approximately 6,286,000 acres of potential development areas, and is estimated to result in 108,000 acres of ground disturbance from anticipated solar energy development.

Assuming full build out of the anticipated solar capacity, most of the risks to avian and bat species would be in the Cadiz Valley and Chocolate Mountains, within which 37% of the total anticipated solar development would occur. The Imperial Borrego Valley, West Mojave and Eastern Slopes, Kingston and Funeral Mountains, and Providence and Bullion Mountains subareas would contain smaller proportions of development, with 19%, 17%, 16%, and 12% of the impacts respectively. Impacts of solar would be evenly distributed along the Nevada border and along the Colorado River corridor. Development would also be expected in the agricultural areas bordering the Salton Sea and across the agricultural areas of the Western Mojave, including Antelope Valley, Apple Valley and areas North of Edwards AFB. The east Riverside region and consequently the migratory travel routes for wetland species between the Colorado River, the Salton Sea and the Coachella Valley would receive the highest impacts associated with solar development.

Solar projects would result in adverse impacts to covered bird and bat species. Impacts from wind projects would be analyzed on a project by project basis. Wind projects would develop bird and bat management plans. Each project would require the implementation of avoidance, minimization, and compensation measures to offset collision impacts.

Transmission

The transmission collision and electrocution impacts would occur from generation tie lines (collector lines), new substations, and major transmission lines (delivery lines) that deliver power to major load centers. The distribution of impacts from collector lines would be similar in distribution to the generation facilities. Most of the affected areas would be in Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley and the Mojave and Silurian subareas, with 8,000 acres, 3,000 acres, 1,000 acres of terrestrial impacts anticipated respectively. The remaining 1,000 acres of terrestrial impacts would be spread throughout Mojave and Silurian Valley and Providence and Bullion Mountains subareas.

Both large transmission lines and the network of smaller collector lines would present collision and electrocution hazard to bird Covered Species. In particular, lines running perpendicular to migratory corridors or close to bird refuges would represent a greater hazard. Such lines would include, anticipated delivery lines in Chuckwalla Valley, which would run parallel to I-10 corridor in the existing transmission corridors. In the Imperial Borrego Valley subarea, lines would run along the eastern side of Salton Sea in existing transmission corridors that run parallel to the foothills of the Chocolate Mountains, and would also run from east to west between the Imperial Valley and the San Diego area. All these lines would represent additional risk to migrating and overwintering Covered

Species, due to their location, especially in bad weather when flocks of migratory birds may be forced down.

Large scale development of transmission as anticipated within the plan area would result in adverse impacts to Covered Species. In the No Action Alternative, projects would be analyzed on a project by project basis. Development of lines would follow recommendations of Avian Power Line Interaction Committee (APLIC), where feasible, Each project would require an avian protection plan that would require the implementation of avoidance, minimization, and compensation measures to offset likely collision impacts.

The level of impact on Non-Covered Species would be similar to the Covered Species for each of the renewable energy types discussed above. Under the No Action Alternative, projects would be analyzed on a case-by-case basis and preparation and implementation of plans that detail avoidance, minimization, and compensation measures, are expected to address and offset collision impacts to Non-Covered bird and bat species.

Operational Impacts Take Estimates for Covered Avian and Bat Species

The following section summaries the initial estimates for take of Covered Species by operational activities that would require compensatory mitigation. Take estimates integrate all sources of mortality for each technology that are discussed above. Section IV.7.1.1.2 provides the method used to estimate the operational take for Covered avian and bat species provided here. Based on the location of DFAs and MW distribution, it is expected that take of Covered Species associated with Agricultural habitats would be particularly affected, which would include Covered Species such as burrowing owl, Swainson's hawk, greater sandhill crane and mountain plover.

Table IV.7-10
Plan-Wide Estimated Total Take for Covered Avian and Bat Species – No Action Alternative

Covered Bird and Bat Species	Solar Impact	Wind Impact	Geothermal Impact	Total Impact
Bendire's thrasher	20	50	0	70
Burrowing owl	170	130	0	300
California condor[1]	0	0	0	0
California black rail	60	10	0	70
Gila woodpecker	60	10	0	70
Golden eagle[2]	n/a	n/a	n/a	n/a
Least Bell's vireo	60	0	0	60
Mountain plover	80	90	0	170

Table IV.7-10
Plan-Wide Estimated Total Take for Covered Avian and Bat Species – No Action Alternative

Covered Bird and Bat Species	Solar Impact	Wind Impact	Geothermal Impact	Total Impact
Greater sandhill crane	20	0	0	20
Southwestern willow flycatcher	100	10	0	120
Swainson's hawk	20	40	0	60
Tricolored blackbird	40	130	0	160
Western yellow billed cuckoo	60	10	0	70
Yuma clapper rail	60	10	0	70
Grand Total Avian Species	**750**	**490**	**0**	**1,240**
California leaf-nosed bat	20	0	0	20
Pallid bat	30	200	0	230
Townsend's big-eared bat	60	40	0	100
Grand Total Bat Species	**110**	**240**	**0**	**350**

Notes:
1 It was assumed that take for California condor would not be permitted under No Action Alterative as it is a fully protected species.
2 Take of Golden Eagle would be permitted based on current Eagle Act permit regulations.

Laws and Regulations

Existing laws and regulations would reduce the impacts of renewable energy development projects in the absence of the DRECP. Relevant regulations are presented in the Regulatory Setting in Volume III. Note that because this EIR/EIS addresses amendments to BLM's land use plans, these plans are addressed separately and are not included in this section. The requirements of the following relevant laws and regulations would reduce impacts through avoidance, minimization, and mitigation requirements:

- Federal Endangered Species Act
- Migratory Bird Treaty Act
- Bald and Golden Eagle Protection Act
- Clean Water Act
- Executive Order 11990 Protection of Wetlands
- Fish and Wildlife Coordination Act
- Bureau of Land Management Policy
- California Endangered Species Act
- California Fish and Game Code

- State of California Fully Protected
- Native Plant Protection Act
- California Desert Native Plants Act
- Porter-Cologne Water Quality Control Act
- Wild and Scenic River Act

Mitigation

Mitigation that would apply to future renewable energy and transmission development under the No Action Alternative is assume to be similar in nature to the mitigation that has been adopted for approved renewable energy and transmission development projects in the Plan Area. The types of mitigation that has been required for these projects and would assumed to be required for these projects under the No Action Alternative include:

- Avoidance and Minimization Mitigation Measures
  - Siting and design studies for resource avoidance and minimization
  - Bird use studies
  - Pre-construction nesting bird surveys
  - Biological construction monitoring
  - Worker education
  - Best management practices for water quality and invasive species
  - Species translocation
  - Bird and bat conservation strategies
- Compensation Mitigation Measures
  - Habitat acquisition (fee title or conservation easement)
  - Habitat restoration and enhancement
  - Habitat management actions

IV.7.3.1.1.2 Impacts from Reserve Design in No Action Alternative

The No Action Alternative has no reserve design, but without approval of an action alternative, there would be continued protection of existing protected areas (e.g., Wilderness areas, National and State Parks, etc.). Additionally, the existing BLM land use plans within the Plan Area would continue to be implemented under the No Action Alternative. These existing plans identify various land designations such as existing ACECs, SRMAs, National Scenic and Historic Trails with associated management actions. Under the

No Action Alternative, project-specific mitigation required for renewable energy and transmission projects developed under the No Action that results in habitat conservation cannot be quantified and was not included in this analysis. The following provides an analysis of the conservation provided by existing protected areas and BLM land designations in the DRECP area, organized by landscape, natural communities, and species. Section IV.7.3.1.2 provides a conservation analysis on BLM-administered lands only under the No Action Alternative and Section IV.7.3.1.4 provides a conservation analysis on nonfederal lands only for the No Action Alternative.

Landscape

Habitat Linkages

Table IV.7-11 shows the conservation of the Desert Linkage Network under the No Action Alternative. Overall, 48% (1,758,000 acres) of the Desert Linkage Network habitat linkage areas occur in areas of existing protected areas or in existing BLM conservation designations. Conservation of habitat linkage areas in the subareas would be variable, ranging from 800 acres (4%) in the Owens River Valley to 446,000 acres (50%) in the Cadiz Valley and Chocolate Mountains subarea. Overall, existing BLM conservation designations account for 59% of the total conservation and Existing Protected Areas account for 41%.

Table IV.7-11
Plan-Wide Conservation Analysis for the Desert Linkage Network – No Action Alternative

Subarea	Available Lands (acres)	Existing Protected Areas[1] (acres)	Existing BLM Land Use Plan Conservation Designation[2] (acres)	Total Conservation (acres)
Cadiz Valley and Chocolate Mountains	890,000	187,000	259,000	446,000
Imperial Borrego Valley	155,000	14,000	1,000	16,000
Kingston and Funeral Mountains	174,000	28,000	46,000	74,000
Mojave and Silurian Valley	510,000	172,000	197,000	369,000
Owens River Valley	19,000	40	700	800
Panamint Death Valley	204,000	108,000	60	108,000
Pinto Lucerne Valley and Eastern Slopes	272,000	16,000	24,000	40,000
Piute Valley and Sacramento Mountains	152,000	14,000	88,000	102,000
Providence and Bullion Mountains	426,000	144,000	67,000	211,000
West Mojave and Eastern Slopes	863,000	45,000	347,000	392,000
Grand Total	**3,666,000**	**727,000**	**1,031,000**	**1,758,000**

[1] Existing Protected Areas include Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs).

[2] Existing BLM Land Use Plan conservation designation reports the conservation in the full existing Areas of Critical Environmental Concern (ACECs) designation, which includes BLM and non-BLM inholdings within the designation. Of the approximately 2,966,000 acres of Existing BLM Land Use Plan conservation designations in the Plan Area, approximately 2,395,000 acres occur on BLM-administered lands and approximately 571,000 acres occur on non-BLM inholding lands. Section IV.7.3.1.2 provides a conservation analysis of existing BLM Land Use Plan conservation designations under the No Action Alternative on BLM-administered lands only.

Notes: Overlaps of Existing BLM conservation designations with Existing Protected Areas are reported in the Existing Protected Areas acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Hydrological Resources

A conservation analysis for hydrological resources is provided below, including playa, seep/spring, and the four major rivers in the Plan Area (i.e., Amargosa, Colorado, Mojave and Owens). Conservation of riparian areas and wetlands, which co-occur with many of these hydrological resources, is provided below under Natural Communities.

Playa

Playa totals 322,000acres in the Plan Area. Overall, 35% (113,000 acres) would be conserved under the No Action Alternative. Existing Conservation would account for 83% of the conservation, and existing ACECs would account for 18%.

Seep/Spring

There are 427 seep/spring locations in the Plan Area. Overall, 59% (252 locations) of the seep/spring locations would be conserved under the No Action Alternative. The conservation of seep/spring under the No Action Alternative would be relatively high in most subareas. These include Cadiz Valley and Chocolate Mountains (95%, 5 locations), Kingston and Funeral Mountains (61%, 48 locations), Mojave and Silurian Valley (84%, 21 locations), Panamint Death Valley (86%, 35 locations), Piute Valley and Sacramento Mountains (75%, 14 locations), and Providence and Bullion Mountains (92%, 60 locations). Subareas with lower conservation of seep/spring include Imperial Borrego Valley (45%, 9 locations), Owens River Valley (74%, 28 locations), Pinto Lucerne Valley and Eastern Slopes (37%, 25 locations), and West Mojave and Eastern Slopes (59%, 252 locations). Overall, Existing Conservation would account for 69% of the conservation of seep/spring, and existing ACECs would account for 31%.

Major Rivers

Overall, 43% of the major rivers would be conserved under the No Action Alternative, including 84% of the Amargosa River, 31% of the Colorado River, 28% of the Mojave River,

and 0% of the Owens River. Existing conservation would account for 74% of the conservation of the major rivers and existing ACECs would account for 27%.

Dune and Sand Resources

Overall, 47% (704,000 acres) of dunes and sand resources would be conserved under the No Action Alternative. At least 70% of dunes and sand resources would be conserved in 2 subareas in the Plan Area that contain substantial acreage of dunes and sand resources, including Mojave and Silurian Valley at 84% (170,000 acres) and Panamint and Death Valley at 72% (101,000acres). Subareas with lower conservation of dunes and sand resources under the No Action Alternative are Cadiz Valley and Chocolate Mountains at 31% (184,000 acres), Imperial Borrego Valley at 55% (72,000 acres), Kingston and Funeral Mountains at 53% (36,000 acres), Owens River Valley at less than 1% (10 acres), Providence and Bullion Mountains at 37% (92,000 acres), Pinto Lucerne Valley and Eastern Slopes at 58% (35,000 acres), Piute Valley and Sacramento Mountains at 57% (30 acres), and West Mojave and Eastern Slopes at 36% (13,000 acres).

Environmental Gradients

The conservation analysis addresses four types of environmental gradients in the Plan Area: elevation, landforms, slope, and aspect.

Elevations are characterized by 1,000-foot interval classes ranging from below sea level to 9,000 feet. Approximately 92% of the Plan Area is between sea level and 5,000 feet, 6% is below sea level, and 2% is above 5,000 feet. Under the No Action Alternative, the majority of available lands would be conserved at most elevation classes above sea level. The average conservation of elevation classes above sea level would be 59%. The majority of Plan Area lands for most elevation classes above sea level will be conserved under the No Action Alternative optimizing the potential for successful species range shifts, contractions, and expansions, which may occur in response to climate change. In addition, the conservation of such a high proportion of Plan Area lands across almost all elevation classes allows for the conservation of the greatest range and diversity of natural communities and Covered Species habitats. Conserving the majority of most elevation classes within the Plan Area will also promote ecological processes and help sustain natural communities and Covered Species.

Landforms in the Plan Area include canyons/deeply incised streams, mountain tops/high ridges, open slopes, and plains. Plains are the dominant landform in the Plan Area totaling 13,906,000 acres, or 73% of the Plan Area. Conservation of the plains landform under the No Action Alternative would include 51% of plains. As the majority of Covered Species in the Plan Area are associated with plains during part or all of its life cycle, the conservation of the majority of this landform is of benefit to a large number of Covered Species including

those Covered Species that spend its entire life cycle within this type of landform, and those Covered Species that utilize it during parts of its life cycle such as for breeding, migration, or wintering. Open slopes make up about 16% of the Plan Area and canyons/deeply incised streams and mountain tops/high ridges each make up about 5% to 6% of the Plan Area.

Conservation of the remaining landforms under the No Action Alternative would include 77% of canyons/deeply incised streams, 77% of mountain tops/high ridges, and 74% of open slopes. As the majority of Plan Area lands for all landforms will be conserved under the No Action Alternative, it optimizes the potential for successful species range shifts, contractions, and expansions, which may occur in response to climate change. In addition, the conservation of such a high proportion of Plan Area lands across all landforms allows for the conservation of the greatest range and diversity of natural communities and Covered Species habitats. Conserving the majority of each landform within the Plan Area will also promote ecological processes and help sustain natural communities and Covered Species.

Slopes in the Plan Area are characterized by 5% interval classes. Sixty-one percent of the Plan Area lands are on slopes up to 5%, and 87% of the Plan Area lands are on slopes less than 20%. Conservation of the slope classes under the No Action Alternative would range from 48% of slopes up to 5% to 92% of slopes over 100%, with 83% of slopes less than 20% conserved under the No Action Alternative. All slope classes above 5% slope would have at least 70% conservation. The majority of Plan Area lands within each slope class except for below 5% slope will be conserved under the No Action Alternative optimizing the potential for successful species range shifts, contractions, and expansions, which may occur in response to climate change. In addition, the conservation of such a high proportion of Plan Area lands across all slope classes allows for the conservation of the greatest range of natural communities and Covered Species habitats. Conserving the majority of each slope class within the Plan Area will also promote ecological processes and help sustain natural communities and Covered Species.

Aspects in the Plan Area include nine classes: north, northeast, east, southeast, south, southwest, west, northwest, and flat. Except for flat, the remaining eight aspects are fairly evenly distributed in the Plan Area, ranging from 9% for northwest aspects to 15% for northeast aspects. Flat terrains account for only 1% of the Plan Area. Under the No Action Alternative, conservation of aspects would range from 13% for flat terrain to 62% of west aspect. The majority of Plan Area lands for each aspect class except for flat terrain will be conserved under the No Action Alternative optimizing the potential for successful species range shifts, contractions, and expansions, which may occur in response to climate change. In addition, the conservation of such a high proportion of Plan Area lands across all aspect classes allows for the conservation of the greatest range of natural communities and Covered Species habitats. Conserving the majority of each aspect class within the Plan Area will also promote ecological processes and help sustain natural communities and Covered Species.

Natural Communities

Table IV.7-12 shows the conservation to natural communities under the No Action Alternative. A conservation summary by general community is provided below.

California forest and woodlands

Overall, approximately 29,000 acres (20%) of California forest and woodlands would be conserved under the No Action Alternative. The majority of conservation would occur in the Pinto Lucerne Valley and Eastern Slopes subarea, but conservation would also occur in the West Mojave and Eastern Slopes subarea.

California forest and woodlands provide habitat for the following Covered Species: Tehachapi slender salamander, golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, and bighorn sheep. California forest and woodlands also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-7. Therefore, conservation of California forest and woodlands would provide conservation of suitable habitat for these species.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 17,000 acres (16%) of chaparral and coastal scrubs would be conserved under the No Action Alternative. The majority of conservation would occur in the West Mojave and Eastern Slopes, Pinto Lucerne Valley and Eastern Slopes, and Mojave and Silurian Valley subareas.

Chaparral and coastal scrubs provide habitat for the following Covered Species: golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, Parish's daisy, and Bakersfield cactus. Chaparral and coastal scrubs also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-7. Therefore, conservation of chaparral and coastal scrubs would provide conservation of suitable habitat for these species.

Desert conifer woodlands

Overall, approximately 169,000 acres (59%) of desert conifer woodlands would be conserved under the No Action Alternative. The majority of conservation would occur in the Pinto Lucerne Valley and Eastern Slopes and Providence and Bullion Mountains subareas, but conservation would occur in nine of the ten subareas.

Desert conifer woodlands provide habitat for the following Covered Species: Tehachapi slender salamander, golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, and bighorn sheep. Desert conifer woodlands also provide

habitat for the Non-Covered Species associated with this community as identified in Table IV.7-7. Therefore, conservation of desert conifer woodlands would provide conservation of suitable habitat for these species.

Desert outcrop and badlands

Overall, approximately 1,078,000 acres (67%) of desert outcrop and badlands would be conserved under the No Action Alternative. The majority of the conservation would occur in the Cadiz Valley and Chocolate Mountains and Piute Valley and Sacramento Mountains subareas, but there are over 1,000 acres of conservation of desert outcrop and badlands in each of the Plan Area's subareas.

Desert outcrop and badlands provide habitat for the following Covered Species: golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, and bighorn sheep. Covered species associated with desert scrub may also be associated with this general community. Desert outcrop and badlands also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-7. Therefore, conservation of desert outcrop and badlands would provide conservation of suitable habitat for these species.

Desert scrubs

Overall, approximately 7,708,000acres (58%) of desert scrubs would be conserved under the No Action Alternative. The majority of the conserved acreage would occur in the Kingston and Funeral Mountains, Providence and Bullion Mountains, Mojave and Silurian Valley, and Panamint Death Valley subareas. However, conservation of desert scrubs is well distributed with conservation in every subarea of the Plan Area. As the most prevalent desert scrub natural community in the Plan Area, lower bajada and fan Mojavean–Sonoran desert scrub accounts for the majority of the conservation of desert scrub communities.

Desert scrubs provide habitat for the following Covered Species: golden eagle, California condor, Bendire's thrasher, burrowing owl, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, Mohave ground squirrel, bighorn sheep, desert tortoise, flat-tailed horned lizard, Mojave fringe-toed lizard, triple-ribbed milk-vetch, alkali mariposa-lily, desert cymopterus, Mojave tarplant, Little San Bernardino Mountains linanthus, Mojave monkeyflower, and Bakersfield cactus. Desert scrubs also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-7. Therefore, conservation of desert scrubs would provide conservation of suitable habitat for these species.

Dunes

Overall, approximately 181,000acres (64%) of dunes would be conserved under the No Action Alternative. The majority of the conserved acreage would occur in the Owens River Valley, Imperial Borrego Valley, and Panamint Death Valley subareas. The remaining conserved acreage is distributed throughout the remaining subareas.

Dune communities provide habitat for the following Covered Species: Mojave fringe-toed lizard, flat-tailed horned lizard, pallid bat, California leaf-nosed bat, and Townsend's big-eared bat. Dune communities also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-7. Therefore, conservation of desert dunes would provide conservation of suitable habitat for these species.

Grasslands

Overall, approximately 32,000 acres (13%) of grasslands would be conserved under the No Action Alternative. The majority of the conserved acreage would occur in the Pinto Lucerne Valley and Eastern Slopes, but there would also be substantial conservation in the Mojave and Silurian Valley and West Mojave and Eastern Slopes subareas.

Grassland communities provide habitat for the following Covered Species: golden eagle, burrowing owl, mountain plover, and Bendire's thrasher. Grasslands also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-7. Therefore, conservation of grasslands would provide conservation of suitable habitat for these species.

Riparian

Overall, approximately 494,000 acres (50%) of riparian communities would be conserved under the No Action Alternative. About half of the conserved acreage would occur in the Cadiz Valley and Chocolate Mountains and Providence and Bullion Mountains subareas. As the most prevalent riparian natural community in the Plan Area, Madrean Warm Semi-Desert Wash Woodland/Scrub accounts for the majority (74%) of the conservation of riparian communities.

Riparian communities provide habitat for the following Covered Species: California black rail, Gila woodpecker, Yuma clapper rail, least Bell's vireo, southwestern willow flycatcher, western yellow-billed cuckoo, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, and Tehachapi slender salamander. In addition, species associated with desert scrub are also associated with Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub. Conservation of riparian communities would benefit these species. Riparian communities

also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-7. Therefore, conservation of riparian communities would provide conservation of suitable habitat for these species.

Wetlands

Overall, approximately 310,000 acres (36%) of wetland communities would be conserved under the No Action Alternative. Over half of the conserved acreage would occur in the Panamint Death Valley and West Mojave and Eastern Slopes subareas with the remaining conserved acreage distributed throughout the remaining subareas. As the most prevalent wetland natural communities in the Plan Area, conservation of North American warm desert alkaline scrub and herb playa and wet flat and Southwestern North American salt basin and high marsh account for the majority (93%) of the conservation of riparian communities.

Wetland communities provide habitat for the following Covered Species: California black rail, Yuma clapper rail, California leaf-nosed bat, Townsend's big-eared bat, desert pupfish, Mohave tui chub, Owens pupfish, and Owens tui chub. In addition, species associated with desert scrub are also associated with Southwestern North American Salt Basin and High Marsh. Wetland communities also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-7. Conservation of wetland communities would benefit these species.

Table IV.7-12
Plan-Wide Conservation Analysis for Natural Communities – No Action Alternative

Natural Community	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
California Forest and Woodland				
Californian broadleaf forest and woodland	72,000	1,000	500	2,000
Californian montane conifer forest	78,000	25,000	3,000	27,000
Chaparral and Coastal Scrub Community (Cismontane Scrub)				
Californian mesic chaparral	4,000	20	–	20
Californian pre-montane chaparral	1,000	–	20	20
Californian xeric chaparral	24,000	3,000	10	3,000
Central and south coastal California seral scrub	1,000	–	–	–

Table IV.7-12
Plan-Wide Conservation Analysis for Natural Communities – No Action Alternative

Natural Community	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
Central and South Coastal Californian coastal sage scrub	54,000	2,000	3,000	5,000
Western Mojave and Western Sonoran Desert borderland chaparral	24,000	9,000	–	9,000
Desert Conifer Woodlands				
Great Basin Pinyon - Juniper Woodland	287,000	159,000	10,000	169,000
Desert Outcrop and Badlands				
North American warm desert bedrock cliff and outcrop	1,613,000	799,000	279,000	1,078,000
Desert Scrub				
Arizonan upland Sonoran desert scrub	57,000	43,849	200	44,000
Intermontane deep or well-drained soil scrub	107,000	30,000	31,000	60,000
Intermontane seral shrubland	74,000	1,000	1,000	3,000
Inter-Mountain Dry Shrubland and Grassland	437,000	97,000	84,000	180,000
Intermountain Mountain Big Sagebrush Shrubland and steppe	76,000	8,000	10,000	18,000
Lower Bajada and Fan Mojavean - Sonoran desert scrub	10,830,000	4,529,000	1,862,000	6,391,000
Mojave and Great Basin upper bajada and toeslope	1,334,000	837,000	121,000	957,000
Shadscale - saltbush cool semi-desert scrub	281,000	37,000	16,000	54,000
Southern Great Basin semi-desert grassland	100	0	40	40
Dunes				
North American warm desert dunes and sand flats	281,000	145,000	35,000	181,000
Grassland				
California Annual and Perennial Grassland	230,000	23,000	7,000	31,000

Table IV.7-12
Plan-Wide Conservation Analysis for Natural Communities – No Action Alternative

Natural Community	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
California annual forb/grass vegetation	8,000	400	1,000	1,000
Riparian				
Madrean Warm Semi-Desert Wash Woodland/Scrub	697,000	193,000	172,000	365,000
Mojavean semi-desert wash scrub	30,000	7,000	7,000	13,000
Riparian	600	30	—	30
Sonoran-Coloradan semi-desert wash woodland/scrub	191,000	70,000	35,000	105,000
Southwestern North American riparian evergreen and deciduous woodland	6,000	500	100	600
Southwestern North American riparian/wash scrub	66,000	7,000	2,833	10,000
Wetland				
Arid West freshwater emergent marsh	4,000	40	—	40
Californian warm temperate marsh/seep	400	0	10	10
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	310,000	135,000	30,000	164,000
Open Water	209,000	23,000	80	23,000
Playa	78,000	400	70	400
Southwestern North American salt basin and high marsh	260,000	30,000	92,000	122,000
Wetland	8,000	30	50	90
Other Land Cover				
Agriculture	711,000	6,000	4,000	10,000
Developed and Disturbed Areas	447,000	3,000	9,000	12,000
Rural	114,000	900	2,000	3,000
Not Mapped	7,000	200	60	300
Total	**19,011,000**	**7,226,000**	**2,818,000**	**10,044,000**

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
[2] Existing Protected Areas include Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs).

[3] Existing BLM Land Use Plan conservation designation reports the conservation in the full existing Areas of Critical Environmental Concern (ACECs) designation, which includes BLM and non-BLM inholdings within the designation. Of the approximately 2,966,000 acres of Existing BLM Land Use Plan conservation designations in the Plan Area, approximately 2,395,000 acres occur on BLM-administered lands and approximately 571,000 acres occur on non-BLM inholding lands. Section IV.7.3.1.2 provides a conservation analysis of existing BLM Land Use Plan conservation designations under the No Action Alternative on BLM-administered lands only.

Notes: Overlaps of Existing BLM conservation designations with Existing Protected Areas are reported in the Existing Protected Areas acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Covered Species Habitat

Table IV.7-13 shows the conservation of Covered Species habitat under the No Action Alternative. The majority of the habitat conserved under the No Action Alternative is associated with the Kingston and Funeral Mountains, Providence and Bullion Mountains, Cadiz Valley and Chocolate Mountains and Mojave and Silurian Valley subareas.

Much of the habitats for desert tortoise and Mojave fringe-toed lizard are in the Mojave Desert in areas that occur in both the Existing Protected Areas and BLM Existing ACECs. Flat-tailed horned lizard habitat is only conserved in the Imperial Borrego Valley, mostly in existing conservation areas. Tehachapi slender salamander habitat occurs in the Tehachapi Mountains where conservation is primarily composed of BLM Existing ACECs.

The majority of the habitat conservation of covered bird species under the No Action Alternative is in Existing Protected Areas. Conservation of Bendire's thrasher, burrowing owl and least Bell's vireo occurs in all subareas of the Plan Area, and except for burrowing owl is mainly in Existing Protected Areas.

California condor mainly occurs in the West Mojave and Eastern Slopes subarea so the majority of conservation is also in this subarea with most of the conserved acreage in BLM Existing ACECs. Golden eagle has the largest total conservation of suitable habitat for all covered bird species. The conservation of golden eagle is widespread in the Plan Area with most of the conservation in BLM Existing ACECs. Swainson's hawk is primarily associated with the Imperial Borrego Valley, West Mojave and Eastern Slopes, and Owens River Valley subareas; of these subareas, the majority of suitable habitat is conserved in Existing Protected Areas.

Gila woodpecker are mainly conserved in the Cadiz Valley and Chocolate Mountains subarea and most of the conserved areas are in Existing Protected Areas. Conservation of mountain plover suitable habitat is divided between Existing Protected Areas and BLM Existing ACECs in the West Mojave and Eastern Slopes and Imperial Borrego Valley subareas.

Conservation of suitable habitat for desert pupfish and Mohave tui chub is mostly within Existing Protected Areas. All conservation (2%) of suitable habitat for Owens pupfish and Owens tui chub occurs within existing conservation under the No Action Alternative.

Conservation of suitable habitat for bighorn sheep, both inter-mountain and mountain habitat, is widespread and is divided between BLM Existing ACECs and Existing Protected Areas. The majority of Mohave ground squirrel suitable habitat conservation is within BLM Existing ACECs. Suitable habitat for the covered bat species—California leaf-nosed bat, pallid bat, and Townsend's big-eared bat—is widespread and mainly conserved in Existing Protected Areas.

Conservation of plant species is highly variable under the No Action Alternative.

Table IV.7-13
Plan-wide Conservation Analysis for Species Habitat – No Action Alternative

Species	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
Amphibian/Reptile				
Agassiz's desert tortoise	9,830,000	3,688,000	2,260,000	5,948,000
Flat-tailed horned lizard	753,000	151,000	142,000	292,000
Mojave fringe-toed lizard	1,097,000	400,000	97,000	497,000
Tehachapi slender salamander	48,000	300	3,000	3,000
Bird				
Bendire's thrasher	2,140,000	1,196,000	269,000	1,464,000
Burrowing owl	5,264,000	475,000	941,000	1,416,000
California black rail	197,000	21,000	8,000	29,000
California condor	1,240,000	81,000	118,000	198,000
Gila woodpecker	106,000	10,000	2,000	13,000
Golden eagle–foraging	6,672,000	2,930,000	1,416,000	4,346,000
Golden eagle–nesting	4,427,000	2,676,000	373,000	3,049,000
Greater sandhill crane	617,000	6,000	1,000	7,000
Least Bell's vireo	226,000	86,000	24,000	109,000
Mountain plover	828,000	7,000	7,000	14,000
Southwestern willow flycatcher	317,000	17,000	7,000	25,000
Swainson's hawk	1,458,000	20,000	33,000	54,000
Tricolored Blackbird	271,000	11,000	6,000	17,000
Western yellow-billed cuckoo	152,000	15,000	6,000	21,000
Yuma clapper rail	51,000	10,000	2,000	11,000

Table IV.7-13
Plan-wide Conservation Analysis for Species Habitat – No Action Alternative

Species	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
Fish				
Desert pupfish	8,000	900	90	1,000
Mohave tui chub	300	200	–	200
Owens pupfish	18,000	300	–	300
Owens tui chub	17,000	300	–	300
Mammal				
Bighorn sheep – inter-mountain habitat	3,809,000	1,882,000	524,000	2,406,000
Bighorn sheep – mountain habitat	6,648,000	4,070,000	597,000	4,667,000
California leaf-nosed bat	7,135,000	3,106,000	1,288,000	4,394,000
Mohave ground squirrel	2,403,000	204,000	737,000	941,000
Pallid bat	16,385,000	6,785,000	2,661,000	9,446,000
Townsend's big-eared bat	14,651,000	5,832,000	2,203,000	8,035,000
Plant				
Alkali mariposa-lily	119,000	200	400	600
Bakersfield cactus	278,000	20,000	55,000	75,000
Barstow woolly sunflower	154,000	3,000	86,000	90,000
Desert cymopterus	205,000	7,000	102,000	109,000
Little San Bernardino Mountains linanthus	282,000	87,000	3,000	90,000
Mojave monkeyflower	160,000	27,000	79,000	106,000
Mojave Tarplant	265,000	48,000	70,000	118,000
Owens Valley checkerbloom	147,000	2,000	300	3,000
Parish's daisy	188,000	82,000	5,000	87,000
Triple-ribbed milk-vetch	8,000	5,000	70	5,000

[1] Available lands includes the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

[2] Existing Protected Areas include Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs).

[3] Existing BLM Land Use Plan conservation designation reports the conservation in the full existing Areas of Critical Environmental Concern (ACECs) designation, which includes BLM and non-BLM inholdings within the designation. Of the approximately 2,966,000 acres of Existing BLM Land Use Plan conservation designations in the Plan Area, approximately 2,395,000 acres occur on BLM-administered lands and approximately 571,000 acres occur on non-BLM inholding lands. Section IV.7.3.1.2 provides a conservation analysis of existing BLM Land Use Plan conservation designations under the No Action Alternative on BLM-administered lands only.

Notes: Overlaps of Existing BLM conservation designations with Existing Protected Areas are reported in the Existing Protected Areas acreages. Acreages are reported within available lands, which includes the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of

100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For Agassiz's desert tortoise, desert tortoise important areas were identified that include tortoise conservation areas (TCAs), desert tortoise linkages, and desert tortoise high priority habitat (see desert tortoise BGOs in Appendix C). Table IV.7-14 provides a conservation analysis for these desert tortoise important areas, organized by desert tortoise Recovery Units: Colorado Desert, Eastern Mojave, and Western Mojave. Within the Colorado Desert Recovery Unit, 75% of TCAs, linkage habitat, and high priority habitat would be conserved under the No Action Alternative. Within the Eastern Mojave Recovery Unit, 82% of the important areas would be conserved under the No Action Alternative. Within the Western Mojave Recovery Unit, 74% of TCAs and linkage habitat would be conserved under the No Action Alternative. Existing federal and state laws and regulations would require avoidance, minimization, and compensation for impacts to this federal and state listed species that would likely contribute additional conservation than is reported here.

Table IV.7-14
Plan-Wide Conservation Analysis for Desert Tortoise – No Action Alternative

Recovery Unit	Reserve	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
Colorado Desert	High Priority Habitat	387,000	157,000	0	157,000
	Linkage	469,000	126,000	4,000	130,000
	TCA	3,130,000	1,544,000	1,175,000	2,719,000
Colorado Desert Total		*3,985,000*	*1,827,000*	*1,178,000*	*3,005,000*
Eastern Mojave	Linkage	784,000	421,000	14,000	435,000
	TCA	2,096,000	1,758,000	173,000	1,931,000
Eastern Mojave Total		*2,880,000*	*2,179,000*	*186,000*	*2,366,000*
Western Mojave	Linkage	1,206,000	370,000	56,000	426,000
	TCA	2,313,000	1,059,000	1,108,000	2,166,000
Western Mojave Total		*3,519,000*	*1,429,000*	*1,163,000*	*2,592,000*
Total		**10,384,000**	**5,435,000**	**2,528,000**	**7,963,000**

1 Available lands includes the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

2 Existing Protected Areas include Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs).

3 Existing BLM Land Use Plan conservation designation reports the conservation in the full existing Areas of Critical Environmental Concern (ACECs) designation, which includes BLM and non-BLM inholdings within the designation. Of the approximately 2,966,000 acres of Existing BLM Land Use Plan conservation designations in the Plan Area, approximately 2,395,000 acres occur on BLM-administered lands and approximately 571,000 acres occur on non-BLM inholding lands. Section IV.7.3.1.2 provides a conservation analysis of existing BLM Land Use Plan conservation designations under the No Action Alternative on BLM-administered lands only.

Notes: Overlaps of Existing BLM conservation designations with Existing Protected Areas are reported in the Existing Protected Areas acreages. Acreages are reported within available lands, which includes the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For Mohave ground squirrel, Mohave ground squirrel important areas were identified that include key population centers, linkages, expansion areas, and climate change extension areas (see Mohave ground squirrel BGOs in Appendix C). Table IV.7-15 provides a conservation analysis for these Mohave ground squirrel important areas. Approximately 55% of key population centers and 42% of linkages would be conserved under the No Action Alternative. Expansion areas and climate change extension areas would be conserved at 29% and 67% respectively. Existing federal and state regulations would require avoidance, minimization, and compensation for impacts to this federally sensitive and state listed species that would likely contribute additional conservation than is reported here.

Table IV.7-15
Plan-Wide Conservation Analysis for Mohave Ground Squirrel – No Action Alternative

Mohave Ground Squirrel Important Area Type	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
Key Population Center	509,000	44,000	234,000	278,000
Linkage	384,000	30,000	133,000	163,000
Expansion Area	224,000	19,000	47,000	66,000
Climate Change Extension	552,000	77,000	293,000	370,000
Total	**1,668,000**	**170,000**	**707,000**	**877,000**

1 Available lands includes the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

2 Existing Protected Areas include Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs).

3 Existing BLM Land Use Plan conservation designation reports the conservation in the full existing Areas of Critical Environmental Concern (ACECs) designation, which includes BLM and non-BLM inholdings within the designation. Of the approximately 2,966,000 acres of Existing BLM Land Use Plan conservation designations in the Plan Area, approximately 2,395,000 acres occur on BLM-administered lands and approximately 571,000 acres occur on non-BLM inholding lands. Section IV.7.3.1.2 provides a conservation analysis of existing BLM Land Use Plan conservation designations under the No Action Alternative on BLM-administered lands only.

Notes: Overlaps of Existing BLM conservation designations with Existing Protected Areas are reported in the Existing Protected Areas acreages. Acreages are reported within available lands, which includes the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Within the Plan Area, critical habitat has been designated by the USFWS for the following Covered Species: desert tortoise, southwestern willow flycatcher, desert pupfish, and Parish's daisy. For desert tortoise, approximately 89% of the desert tortoise designated critical habitat would be conserved under the No Action Alternative (78% conserved if non-BLM inholdings within the existing BLM ACECs are excluded). For southwestern willow flycatcher, approximately 19% of the southwestern willow flycatcher designated critical habitat would be conserved under the No Action Alternative (17% conserved if non-BLM inholdings within the existing BLM ACECs are excluded). For desert pupfish, approximately 75% of the desert pupfish designated critical habitat would be conserved under the No Action Alternative. For Parish's daisy, approximately 56% of the Parish's daisy designated critical habitat would be conserved under the No Action Alternative (43% conserved if non-BLM inholdings within the existing BLM ACECs are excluded).

Non-Covered Species Critical Habitat

Ten Non-Covered Species have Critical Habitat within the Plan Area. Table IV.7-16 shows the total amount of Critical Habitat and the amount within each Plan-wide reserve designation for Non-Covered Species. These reserve designations would be considered beneficial impacts for biological resources. With the exception of arroyo toad, all or a substantial portion of each species' Critical Habitat are within an existing protected area or within a BLM conservation designation.

Table IV.7-16
Plan-Wide Conservation Analysis for Critical Habitat Within Existing BLM Land Use Plans for Non-Covered Species – No Action Alternative

Species	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
Amargosa nitrophila	1,000	0	1,000	1,000
Amargosa vole	5,000	1,400	2,000	3,400
Arroyo toad	4,000	0	0	0
Ash Meadows gumplant	300	0	300	300
Cushenbury buckwheat	600	0	4,000	600
Cushenbury milk-vetch	1,000	0	8,000	1,000
Cushenbury oxytheca	100	0	80	100
Lane Mountain milk-vetch	14,000	3,000	10,000	14,000
Pierson's milk-vetch	12,000	3,000	9,000[4]	12,000
Peninsular Bighorn sheep	47,000	41,000	300	41,300

[1] Available lands includes the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

[2] Existing Protected Areas include Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs).

[3] Existing BLM Land Use Plan conservation designation reports the conservation in the full existing Areas of Critical Environmental Concern (ACECs) designation, which includes BLM and non-BLM inholdings within the designation. Of the approximately 2,966,000 acres of Existing BLM Land Use Plan conservation designations in the Plan Area, approximately 2,395,000 acres occur on BLM-administered lands and approximately 571,000 acres occur on non-BLM inholding lands. Section IV.7.3.1.2 provides a conservation analysis of existing BLM Land Use Plan conservation designations under the No Action Alternative on BLM-administered lands only.

[4] Approximately 9,000 acres protected within areas designated as closed to motorized vehicles in the Imperial Sand Dunes RAMP. The ISDRA RAMP is not considered part of the DRECP decision area.

Notes: Overlaps of Existing BLM conservation designations with Existing Protected Areas are reported in the Existing Protected Areas acreages. Acreages are reported within available lands, which includes the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

IV.7.3.1.2 Impacts on BLM Lands of Existing BLM Land Use Plans in No Action Alternative

Under the No Action Alternative, the existing BLM land use plans within the Plan Area would continue to be implemented on BLM lands. These plans allow for renewable energy development in certain land designations, including SEZs and Solar PEIS Variance lands. Also, as has been the case for individual solar, wind, and transmission projects approved on BLM land up to now, these projects would be approved along with a project-specific LUPA if required. If a solar project were proposed in a SEZ, no LUPA would be required. Likewise, the existing plans identify various land designations such as existing protected areas, ACECs, SRMAs, and National Scenic and Historic Trails with associated management actions.

Impact Assessment

The following provides the assessment of impacts and mitigation for renewable energy and transmission development on BLM-administered lands under the No Action Alternative. Impacts are organized by biological resources impact statement (i.e., BR-1 through BR-9).

Impact BR-1: Siting, construction, decommissioning, and operational activities would result in loss of native vegetation.

Table IV.7-17 shows the impacts to natural communities under the No Action Alternative on BLM Land.

<u>California forest and woodlands</u>

Overall, approximately 200 acres of California forest and woodlands would be impacted under the No Action Alternative on BLM Land. Most of this impact would be from solar development in the West Mojave and Eastern Slopes subarea, but there would also be

impacts from wind and transmission development in the West Mojave and Eastern Slopes subarea and from solar, wind, and transmission development in the Pinto Lucerne Valley and Eastern Slopes subarea. Impacts to this community may have an adverse effect and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 80 acres of chaparral and coastal scrubs would be impacted under the No Action Alternative on BLM Land. All of the impacts to chaparral and coastal scrubs would be in the Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas from solar, wind, and transmission development. Impacts to this community may have an adverse effect and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Desert conifer woodlands

Overall, approximately 200 acres of desert conifer woodlands would be impacted under the No Action Alternative on BLM Land. Impacts to desert conifer woodlands would be from solar development in the Kingston and Funeral Mountains subarea, and solar, wind, and transmission development in the West Mojave and Eastern Slopes and Pinto Lucerne Valley and Eastern Slopes subareas. Impacts to this community may have an adverse effect and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Desert outcrop and badlands

Overall, approximately 9,000 acres of desert outcrop and badlands would be impacted under the No Action Alternative on BLM Land. Most of these impacts would be from solar development in the Cadiz Valley and Chocolate Mountains subarea. There are also substantial impacts in the Imperial Borrego Valley subarea. Impacts to this community may have an adverse effect and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Desert scrubs

Overall, approximately 59,000 acres of desert scrubs would be impacted under the No Action Alternative on BLM Land. Most of these impacts would occur in the Cadiz Valley and Chocolate Mountains and Kingston and Funeral Mountains subareas, but there would also be substantial impacts in the Providence and Bullion Mountains, Imperial Borrego Valley, and West Mojave and Eastern Slopes subareas. Impacts to this community may

have an adverse effect and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Dunes

Overall, approximately 1,000 acres of dunes would be impacted under the No Action Alternative on BLM Land. Most of these impacts would occur in the Cadiz Valley and Chocolate Mountain, Imperial Borrego Valley, Kingston and Funeral Mountains, and Providence and Bullion Mountains subareas. Impacts to this community may have an adverse effect and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Grasslands

Overall, approximately 200 acres of grasslands would be impacted under the No Action Alternative on BLM Land. Impacts would primarily occur in the Pinto Lucerne Valley and Eastern Slopes, Cadiz Valley and Chocolate Mountains, and West Mojave and Eastern Slopes subareas. Impacts to this community may have an adverse effect and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Riparian

Overall, approximately 6,000 acres of riparian communities would be impacted under the No Action Alternative on BLM Land. Impacts would primarily occur in the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas. Impacts to this community may have an adverse effect and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Wetlands

Overall, approximately 3,000 acres of wetland communities would be impacted under the No Action Alternative on BLM Land. Impacts would primarily occur in the Cadiz Valley and Chocolate Mountains, Kingston and Funeral Mountains, Providence and Bullion Mountains, and West Mojave and Eastern Slopes subareas. Impacts to this community may have an adverse effect and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Table IV.7-17
Impact Analysis for Natural Communities Within Existing BLM Land Use Plans – No Action Alternative

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
California Forest and Woodland						
Californian broadleaf forest and woodland	11,000	50	30	—	0	80
Californian montane conifer forest	34,000	70	30	—	10	100
Chaparral and Coastal Scrub Community (Cismontane Scrub)						
Californian mesic chaparral	500	0	0	—	0	0
Californian pre-montane chaparral	300	0	0	—	—	0
Californian xeric chaparral	5,000	10	0	—	10	30
Central and south coastal California seral scrub	20	0	0	—	0	0
Central and South Coastal Californian coastal sage scrub	13,000	20	10	—	20	50
Western Mojave and Western Sonoran Desert borderland chaparral	200	0	0	—	0	0
Desert Conifer Woodlands						
Great Basin Pinyon - Juniper Woodland	50,000	200	50	—	20	200
Desert Outcrop and Badlands						
North American warm desert bedrock cliff and outcrop	1,203,000	7,000	100	90	1,000	9,000
Desert Scrub						
Arizonan upland Sonoran desert scrub	3,000	10	0	0	—	10
Intermontane deep or well-drained soil scrub	69,000	20	20	—	30	60
Intermontane seral shrubland	5,000	0	0	—	0	10
Inter-Mountain Dry Shrubland and Grassland	282,000	500	200	0	90	800
Intermountain Mountain Big Sagebrush Shrubland and steppe	24,000	100	50	—	0	200

Table IV.7-17
Impact Analysis for Natural Communities Within Existing BLM Land Use Plans – No Action Alternative

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Lower Bajada and Fan Mojavean - Sonoran desert scrub	6,078,000	43,000	2,000	300	10,000	54,000
Mojave and Great Basin upper bajada and toeslope	407,000	3,000	50	—	50	3,000
Shadscale - saltbush cool semi-desert scrub	103,000	1,000	10	0	100	1,000
Southern Great Basin semi-desert grassland	50	0	0	—	—	0
Dunes						
North American warm desert dunes and sand flats	125,000	900	0	0	300	2,000
Grassland						
California Annual and Perennial Grassland	28,000	80	20	0	70	200
California annual forb/grass vegetation	1,000	10	0	—	—	10
Riparian						
Madrean Warm Semi-Desert Wash Woodland/Scrub	502,000	2,000	40	30	300	2,000
Mojavean semi-desert wash scrub	11,000	40	10	0	20	60
Sonoran-Coloradan semi-desert wash woodland/scrub	123,000	2,000	10	10	1,000	4,000
Southwestern North American riparian evergreen and deciduous woodland	400	0	0	—	0	0
Southwestern North American riparian/wash scrub	10,000	100	10	10	200	300
Wetland						
Arid West freshwater emergent marsh	10	—	—	—	—	—
Californian warm temperate marsh/seep	0	0	0	—	0	0
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	146,000	800	70	0	100	1,000

Table IV.7-17
Impact Analysis for Natural Communities Within Existing BLM Land Use Plans – No Action Alternative

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Open Water	700	10	0	0	10	20
Playa	26,000	30	0	0	0	30
Southwestern North American salt basin and high marsh	121,000	1,000	200	—	60	1,000
Wetland	100	0	0	—	0	0
Developed and Disturbed Areas						
Agriculture	6,000	100	10	10	100	300
Developed and Disturbed Areas	44,000	20	0	1	10	30
Not Mapped	700	0	0	0	0	0
Rural	3,000	40	10	0	20	70
Total	**9,433,000**	**62,000**	**3,000**	**400**	**14,000**	**79,000**

[1] Available lands includes the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

Notes: Total reported acres include solar and ground-mounted distributed generation (GMDG), short-term and long-term wind impacts, geothermal project area impacts, and transmission impacts. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Rare natural communities include natural community alliances with state rarity rankings S1, S2, or S3 (critically imperiled, imperiled, or vulnerable). Of the 39 rare natural community alliances mapped in the Plan Area on BLM land, 22 rare alliances have the potential to be impacted under the No Action Alternative on BLM land totaling approximately 1,000 acres of impacts. Impacts to rare natural communities would be adverse and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Impact BR-2: Siting, construction, decommissioning, and operational activities would result in adverse effects to jurisdictional waters and wetlands.

Impacts to riparian and wetland natural communities could result in adverse effects to jurisdictional waters and wetlands. Under the No Action Alternative on BLM lands, impacts to riparian and wetland natural communities is not prohibited by existing federal laws and regulations, but impacts to riparian and wetland natural communities identified as jurisdictional waters and wetlands would be regulated by existing federal laws and

regulations. Approximately 6,000 acres of riparian communities and approximately 3,000 acres of wetland communities would be impacted under the No Action Alternative under the BLM LUPA. See the analysis for the loss of native vegetation provided under BR-1 for a discussion of these potential impacts. All or a portion of the estimated riparian and wetland impacts could result in adverse effects to jurisdictional waters and wetlands without avoidance, minimization and mitigation measures necessary to comply with existing federal laws and regulations.

Additionally playas, seeps/springs, major rivers, and ephemeral drainages are waters and wetland features that provide hydrological functions and may be determined to be jurisdictional waters and wetlands. Adverse effects to these features would have the potential to impact jurisdictional waters and wetlands.

Playa

Less than 1% (1,000 acres) of playa would be impacted by Covered Activities under the No Action Alternative on BLM land. The majority of impacts would be associated with solar (1,000 acres), with 80 acres of wind impacts, and 200 acres of transmission impacts. Ecoregion subareas of potential impacts to playas include the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, Kingston and Funeral Mountains, Mojave and Silurian Valley, Pinto Lucerne Valley and Eastern Slopes, Providence and Bullion Mountains, and West Mojave and Eastern Slopes subareas.

Seep/Spring

Seeps occur within the Plan Area and potential impacts to seep/spring have the potential to occur under the No Action Alternative on BLM land in the following ecoregion subareas: Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, Kingston and Funeral Mountains, Mojave and Silurian Valley, Pinto Lucerne Valley and Eastern Slopes, Piute Valley and Sacramento Mountains, and West Mojave and Eastern Slopes. Impacts to seeps and springs would be adverse absent implementation of avoidance measures.

Major Rivers

Major rivers occur within the Plan Area on BLM land and potential impacts to major rivers under the No Action Alternative have the potential to occur to the Amargosa, Colorado, and Mojave Rivers. Impacts to major rivers would be adverse absent implementation of avoidance measures.

Ephemeral Drainages

Ephemeral drainages occur throughout the Plan Area, and some of these features could be determined to state or federal jurisdictional waters. Impacts to ephemeral drainages would

likely occur under the No Action Alternative. Impacts to ephemeral drainages would be adverse absent implementation of avoidance and minimization measures.

Impact BR-3: Siting, construction, decommissioning, and operational activities would result in degradation of vegetation.

Siting, construction, and operation of renewable energy development would result in the degradation of vegetation through the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants. The degree to which these factors contribute to the degradation of vegetation corresponds to the distribution of renewable energy development on BLM Land that could result in dust, fire, and introduction of invasive plants or that would use dust suppressants and implement fire management. The propensity for vegetation to be at risk of degradation was determined by the overlap between natural community models and the likely distribution of renewable energy development across subareas on BLM Land.

Siting, construction, and operations of renewable energy development would not be confined to DFAs and is assumed to follow past and current development patterns, under the No Action Alternative. Therefore, the impacts from renewable energy development, including vegetation degradation from dust, dust suppressants, fire, fire management, and invasive plants, could occur anywhere not prohibited from this development. On BLM Land these impacts would mostly occur in the Cadiz Valley and Chocolate Mountains, Kingston and Funeral Mountains, and Providence and Bullion Mountains subareas, which would experience most of terrestrial operational impacts on BLM Land. As a result, these subareas would have the greatest potential to result in the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants.

Dust and Dust Suppressants

Natural communities are susceptible to vegetation degradation from physical damage, reduced photosynthesis, and reduced net primary productivity as a result of dust created by on-road and off-road vehicle use associated with the operation and maintenance of renewable energy facilities. Specifically, water usage by Mojave desert shrubs has been shown to be particularly affected by dust (Lovich and Ennen 2011). Generally, impacts to these natural communities from renewable energy development on BLM Land are anticipated to be located within the Cadiz Valley and Chocolate Mountains subarea. Plant Covered Species on BLM Land, that could also experience vegetation degradation from dust, would mainly be affected by renewable energy development in the Imperial Borrego Valley subarea. Therefore, considering the distribution of renewable energy development that would cause dust as well as the sensitive natural communities and plant Covered

Species the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas could experience the greatest magnitude of vegetation degradation resulting from dust. Vegetation degradation resulting from dust caused by renewable energy development would require the implementation of avoidance, minimization, and compensation measures to offset these impacts.

Riparian and wetland natural communities would be susceptible to the adverse effects of dust suppressants including chemical and physical changes to an ecosystem, altered hydrological function of soils and drainage areas, and increase pollutant loads in surface water. The largest amount of impacts to riparian and wetland natural communities from renewable energy development is expected to be located in the Cadiz Valley and Chocolate Mountains, with less severe adverse effects occurring in the Kingston and Funeral Mountains and Imperial Borrego Valley subareas. Vegetation degradation resulting from the application of dust suppressants during renewable energy development would require the implementation of avoidance, minimization, and compensation measures to offset these impacts.

Fire and Fire Management

Renewable energy development could result in increased flammable invasive annual plants and anthropogenic ignitions of fires that can cause conversion of natural communities and degrade vegetation. Desert scrub natural communities are naturally slow to recover from fire episodes, which can lead to long-term community type conversion. Approximately 59,000 acres of the impacts to desert scrubs throughout the Plan Area would occur on BLM Land under No Action Alternative. On BLM Land, these impacts would mainly occur within the Cadiz Valley and Chocolate Mountains subarea.

Construction and maintenance of fire breaks and other fire management techniques would typically result in the removal of vegetation from woodland, chaparral, and grassland natural communities. Approximately 200 acres of California forest and woodlands, 80 acres of the Plan-wide effects to chaparral natural communities, and 200 acres of the Plan-wide effects to grassland natural communities would be impacted on BLM Land, under No Action Alternative. These impacts from renewable energy development, which correspond to the amount of potential vegetation degradation resulting from fire management, would predominantly occur in the West Mojave and Eastern Slopes subarea, and to a lesser extent in the Pinto Lucerne Valley and Eastern Slopes, Kingston and Funeral Mountains, and Cadiz Valley and Chocolate Mountains subareas. Vegetation degradation result from fire and fire management for renewable energy development would require the implementation of avoidance, minimization, and compensation measures to offset these impacts.

Invasive Plants

The adverse effects of invasive plants introduced as a result of renewable energy development include increasing the fuel load and the frequency of fires in plant communities and allelopathic effects that hinder the growth or establishment of other plant species. The natural communities and plant Covered Species found on BLM Land are generally at the same risk of adverse effects from the introduction of invasive plants. Therefore, the most vegetation degradation caused by introduction of invasive plants is anticipated to occur in the Cadiz Valley and Chocolate Mountains subarea where most of the impacts to natural communities on BLM Land would be located. Plant Covered Species found on BLM Land would also experience potential vegetation degradation as a result of renewable energy development. The Imperial Borrego Valley is expected to have the majority of impacts to plant Covered Species on BLM Land. As such, the adverse effects resulting from the introduction of invasive plants from renewable energy development would be greatest in the Cadiz Valley and Chocolate Mountains as well as the Imperial Borrego Valley subareas. Vegetation degradation resulting from the introduction of invasive plants by renewable energy development would require the implementation of avoidance, minimization, and compensation measures to offset these impacts.

Impact BR-4: Siting, construction, decommissioning, and operational activities would result in loss of listed and sensitive plants; disturbance, injury, and mortality of listed and sensitive wildlife; and habitat for listed and sensitive plants and wildlife.

The majority of the impacts to plant and wildlife species and their habitat under the BLM LUPA would occur in the Cadiz Valley and Chocolate Mountains, Kingston and Funeral Mountains and Providence and Bullion Mountains subareas. Table IV.7-18 provides the BLM LUPA impact analysis for Covered Species habitat.

Renewable energy development in the Cadiz Valley and Chocolate Mountains subarea would mostly be from solar development, but would also include impacts from transmission development. Typical impacts from these Covered Activities on plant and wildlife species and their habitat is described in Section IV.7.2. This subarea provides suitable habitat that would be impacted for amphibians and reptiles, including Agassiz's desert tortoise, flat-tailed horned lizard and Mojave fringe-toed lizard. There are impacts to suitable habitat for several bird Covered Species in the Cadiz Valley and Chocolate Mountains subarea, including Bendire's thrasher, burrowing owl, gila woodpecker, golden eagle, greater sandhill crane, least Bell's vireo, and mountain plover. Suitable habitat for bighorn sheep, California leaf-nosed bat, pallid bat, and Townsend's big-eared bat would be impacted in this subarea.

Renewable energy development within the Kingston and Funeral Mountains subarea would be entirely from solar energy development. The Kingston and Funeral Mountains subarea

provides suitable habitat for one reptile, Agassiz's desert tortoise, that would be impacted. Impacts would occur to the following covered bird species in this subarea: Bendire's thrasher, burrowing owl, golden eagle, least Bell's vireo, and yellow-billed cuckoo. Impacts to suitable habitat for the following Covered mammals occurs in the Kingston and Funeral Mountains subarea: bighorn sheep, California leaf-nosed bat, desert kit fox, pallid bat, and Townsend's big-eared bat.

Renewable energy development within the Providence and Bullion Mountains subarea would be primarily from solar energy development, but would also include impacts from transmission development. The Providence and Bullion Mountains subarea provides suitable habitat for Agassiz's desert tortoise and Mojave fringe-toed lizard that would be impacted. Impacts would occur to suitable habitat for the following three covered bird species in this subarea: burrowing owl, golden eagle, and yellow-billed cuckoo. Impacts to suitable habitat for the following Covered mammals occurs in the Providence and Bullion Mountains subarea: bighorn sheep, California leaf-nosed bat, pallid bat, and Townsend's big-eared bat.

Impacts to plant and wildlife species and their habitat would be adverse and would require implementation of avoidance, minimization, and compensation measures to offset these impacts consistent with existing applicable laws and regulations.

Table IV.7-18
Impact Analysis for Species Habitat within
Existing BLM Land Use Plans – No Action Alternative

Species	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Amphibian/Reptile						
Agassiz's desert tortoise	5,763,000	37,000	2,000	20	4,000	43,000
Flat-tailed horned lizard	422,000	5,000	500	400	2,000	7,993
Mojave fringe-toed lizard	733,000	10,000	10	—	3,000	13,000
Tehachapi slender salamander	7,000	40	20	—	0	70
Bird						
Bendire's thrasher	772,000	3,000	200	20	300	4,000
Burrowing owl	1,695,000	12,000	2,000	200	5,000	19,000
California black rail	31,000	100	10	10	400	600
California condor	243,000	1,000	500	—	200	2,000
Gila woodpecker	38,000	60	0	0	30	90

Table IV.7-18
Impact Analysis for Species Habitat within Existing BLM Land Use Plans – No Action Alternative

Species	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Golden eagle - foraging	3,916,000	26,000	900	10	5,000	32,000
Golden eagle - nesting	2,405,000	9,000	400	0	800	10,000
Greater sandhill crane	3,000	50	10	0	40	100
Least Bell's vireo	69,000	400	30	0	30	400
Mountain plover	7,000	100	20	10	60	200
Southwestern willow flycatcher	46,000	10	30	10	200	300
Swainson's hawk	113,000	300	100	0	200	700
Tricolored Blackbird	13,000	40	20	0	20	80
Western yellow-billed cuckoo	19,000	30	0	—	40	70
Yuma clapper rail	5,000	30	0	0	90	100
Fish						
Desert pupfish	500	0	0	0	0	10
Mohave tui chub	—	—	—	—	—	—
Owens pupfish	4,000	—	—	—	—	—
Owens tui chub	4,000	—	—	—	—	—
Mammal						
Bighorn sheep – inter-mountain habitat	2,199,000	14,000	400	—	1,000	16,000
Bighorn sheep – mountain habitat	3,567,000	13,986	200	30	900	15,000
California leaf-nosed bat	4,446,000	37,588	200	200	10,000	48,000
Mohave ground squirrel	1,010,000	3,000	1,000	—	300	4,508
Pallid bat	8,908,000	57,000	3,000	400	13,000	72,000
Townsend's big-eared bat	7,564,000	53,000	2,000	300	12,000	68,000
Plant						
Alkali mariposa-lily	2,000	0	0	—	0	10
Bakersfield cactus	77,000	400	200	—	50	700
Barstow woolly sunflower	72,000	600	300	—	28	900
Desert cymopterus	67,000	400	200	—	10	600

Table IV.7-18
Impact Analysis for Species Habitat within Existing BLM Land Use Plans – No Action Alternative

Species	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Little San Bernardino Mountains linanthus	73,000	100	10	0	0	100
Mojave monkeyflower	115,000	30	50	—	80	200
Mojave Tarplant	136,000	400	200	—	70	700
Owens Valley checkerbloom	55,000	0	0	—	0	0
Parish's daisy	85,000	60	10	—	20	100
Triple-ribbed milk-vetch	4,000	0	—	—	0	0

[1] Available lands includes the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

Notes: Total reported acres include solar and ground-mounted distributed generation (GMDG), short-term and long-term wind impacts, geothermal project area impacts, and transmission impacts. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For Agassiz's desert tortoise, desert tortoise important areas were identified that include tortoise conservation areas (TCAs), desert tortoise linkages, and desert tortoise high priority habitat (see desert tortoise BGOs in Appendix C). Table IV.7-19 provides an impact analysis for these desert tortoise important areas in the BLM LUPA area, organized by desert tortoise Recovery Units: Colorado Desert, Eastern Mojave, and Western Mojave. Within the Colorado Desert Recovery Unit, 24,000 acres of TCAs, linkage habitat, and high priority habitat would be impacted under the No Action Alternative. Within the Eastern Mojave Recovery Unit, 9,000 acres of desert tortoise important areas would be impacted under the No Action Alternative. Within the Western Mojave Recovery Unit, 14,000 acres of TCAs and linkage habitat would be impacted under the No Action Alternative. Existing federal laws and regulations would require avoidance, minimization, and compensation for impacts to this federal listed species on BLM-administered lands that would likely reduce the impacts reported here; however, these impacts to desert tortoise important areas would be adverse and would require mitigation.

Table IV.7-19
Impact Analysis for Desert Tortoise Important Areas within Existing BLM Land Use Plans – No Action Alternative

Recovery Unit	Reserve	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Colorado Desert	High Priority Habitat	354,000	6,000	-	200	7,000
	Linkage	406,000	4,000	-	20	4,000
	TCA	1,728,000	9,000	-	5,000	14,000
Colorado Desert Total		*2,488,000*	*19,000*	-	*5,000*	*24,000*
Eastern Mojave	Linkage	728,000	6,000	-	-	6,000
	TCA	239,000	3,000	-	-	3,000
Eastern Mojave Total		*967,000*	*9,000*	-	-	*9,000*
Western Mojave	Linkage	797,000	8,000	100	1,000	9,000
	TCA	964,000	2,572	1,000	1,000	5,000
Western Mojave Total		*1,761,000*	*11,000*	*2,000*	*2,000*	*14,000*
Total		**5,216,000**	**39,000**	**2,000**	**7,000**	**48,000**

[1] Available lands includes the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

Notes: Total reported acres include solar and ground-mounted distributed generation (GMDG), short-term and long-term wind impacts, and transmission impacts. There are no impacts from geothermal development to desert tortoise recovery units under the No Action Alternative. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For golden eagle, a territory-based analysis was conducted (see methods and results in the Chapter IV.7 portion of Appendix R2). Using the golden eagle nest database, golden eagle territories were identified and individually buffered by 1 mile (representing breeding areas around known nests) and 4 miles (representing use areas around known nests). A total of 146 territories occur wholly or partially within the BLM LUPA area. Under the No Action Alternative, 52 territories have nests in or within 1 mile of the area available for renewable energy and transmission development under the No Action Alternative, and the breeding areas of these territories could be impacted by renewable energy and transmission development depending on the siting of specific projects. Under the No Action Alternative, 98 territories have nests in or within 4 miles of the area available for renewable energy and transmission development under the No Action Alternative, and the use areas of these territories could be impacted by renewable energy and transmission development depending of the siting of specific projects. Existing laws and regulations would require avoidance, minimization, and compensation for any take of golden eagles.

For bighorn sheep, bighorn sheep mountain habitat and intermountain (linkage) habitat have been identified in the Plan Area. Under the No Action Alternative on BLM land, approximately 15,000 acres of mountain habitat and 16,000 acres of intermountain habitat would be impacted. Existing federal regulations would require avoidance, minimization, and compensation for impacts to this federal and state listed species.

For Mohave ground squirrel, Mohave ground squirrel important areas were identified that include key population centers, linkages, expansion areas, and climate change extension areas (see Mohave ground squirrel BGOs in Appendix C). Table IV.7-20 provides an impact analysis for these Mohave ground squirrel important areas in the BLM LUPA area. The No Action Alternative would result in 4,000 acres of Mojave ground squirrel important areas. Existing federal regulations would require avoidance, minimization, and compensation for impacts to this BLM sensitive species that would likely reduce the impacts reported here; however, these impacts to Mohave ground squirrel would be adverse and would require mitigation.

Table IV.7-20
Impact Analysis for Mohave Ground Squirrel Important Areas within Existing BLM Land Use Plans – No Action Alternative

Mohave Ground Squirrel Important Area Type	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Key Population Center	300,000	800	400	100	1,000
Linkage	278,000	400	200	–	600
Expansion Area	93,000	200	90	–	300
Climate Change Extension	282,000	1,000	600	200	2,000
Total	**953,000**	**3,000**	**1,000**	**300**	**4,000**

[1] Available lands includes the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Lands.

Notes: Total reported acres include solar and ground-mounted distributed generation (GMDG), short-term and long-term wind impacts, and transmission impacts. There are no impacts from geothermal development on Mohave ground squirrel important areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Siting, construction, and operation of renewable energy could result in the potential disturbance, injury, and mortality of listed and sensitive wildlife from noise, predator avoidance behavior, as well as light and glare. The degree to which these factors contribute to the disturbance of sensitive wildlife corresponds to the distribution of renewable energy development on BLM Land that would result in noise, predator avoidance behavior, or light and glare.

Siting, construction, and operations of renewable energy development would not be confined to DFAs and is assumed to follow past and current development patterns, under the No Action Alternative. Therefore, the impacts from renewable energy development, including the disturbance of wildlife due to the creation of noise, predator avoidance behavior, as well as light and glare, could occur anywhere not prohibited from this development. On BLM Land these impacts would mostly occur in the Cadiz Valley and Chocolate Mountains, Kingston and Funeral Mountains, and Providence and Bullion Mountains subareas, which would experience most of the terrestrial operational impacts on BLM Land. As a result, these subareas would have the greatest potential to disturbance of sensitive wildlife from noise, predator avoidance behavior, as well as light and glare.

Noise

Bird Covered Species, in particular during the nesting seasons, are expected to be sensitive to adverse noise effects generated by mechanical equipment and vehicles associated with the operation and maintenance of renewable energy facilities. The largest amount of impacts to bird Covered Species habitat on BLM Land would be located in the Cadiz Valley and Chocolate Mountains subarea. Smaller mammals, such as the Mohave ground squirrel, and reptiles, such the Mojave fringe-toed lizard and flat-tailed horned lizard, could experience increased predation from noise hindering their ability to detect predators. Overall, impacts on BLM Land to the habitat for these Covered Species would mostly occur in the Cadiz Valley and Chocolate Mountains subarea. As such, the disturbance of wildlife from noise is estimated to predominantly occur in the Cadiz Valley and Chocolate Mountains subarea. This disturbance of wildlife resulting from noise generated by renewable energy development would require the implementation of avoidance, minimization, and compensation measures to offset these impacts.

Predator Avoidance Behavior

The effects of predator avoidance behavior, including reduced foraging and breeding opportunities or avoidance of suitable foraging habitat can occur for some wildlife in response to renewable energy development. Different wildlife species may have varying sensitivities to predator avoidance behavior and may experiences different magnitudes of responses to renewable energy development. However, the most disturbance of wildlife from predator avoidance behavior is estimated to occur in the Cadiz Valley and Chocolate Mountains subarea, where most of the terrestrial operational impacts from renewable energy development on BLM Land are anticipated. As a result, disturbance of wildlife resulting from predator avoidance behavior caused by renewable energy development would require the implementation of avoidance, minimization, and compensation measures to offset these impacts.

Light and Glare

Exposure of wildlife to light and glare from security lighting and reflective materials at renewable energy facilities can alter wildlife behavior including foraging, migration, and breeding. Solar projects would produce increased levels of glare due to the large amount of reflective panel or heliostat surfaces and would have greater effects on wildlife than other renewable energy technologies. Potential adverse effects associated with light and glare from solar projects, including solar flux and bird collisions from the lake effect are analyzed in BR-9. Under the No Action Alternative the most terrestrial operational impacts from renewable energy development on BLM Land are expected to occur in the Cadiz Valley and Chocolate Mountains, Kingston and Funeral Mountains, and Providence and Bullion Mountains subareas. Similarly, impacts from solar projects on BLM Land would primarily occur in the Cadiz Valley and Chocolate Mountains subarea, while the Kingston and Funeral Mountains and Providence and Bullion Mountains would also experience a lesser degree of terrestrial operational impacts from solar development.

Bats and other diurnal predators may exploit night lighting that increases prey detectability, but would also be attracted to areas of greater development that increase potential hazards such as collision. Impacts to habitat for bats would as a result of renewable energy development on BLM Land are predicted to mainly be located in the Cadiz Valley and Chocolate Mountains subarea. Migratory birds that fly during the night may be attracted to aviation safety lighting. For bird Covered Species the Cadiz Valley and Chocolate Mountains, Kingston and Funeral Mountains, and West Mojave and Eastern Slopes are the subareas containing most of the anticipated impacts to bird Covered Species habitat on BLM Land. Therefore, considering the distribution solar and other renewable energy technologies and impacts on habitat for species sensitive light and glare the greatest wildlife disturbance is anticipated to occur in the Cadiz Valley and Chocolate Mountains subarea and to a lesser extent in Kingston and Funeral Mountains as well as the West Mojave and Eastern Slopes subareas.

Non-Covered Species

Potential impacts to Non-Covered Species on BLM land were analyzed as described in Section IV.7.3.1.1. Table IV.7-21 provides an estimation of the impacts to natural communities associated with Non-Covered Species. While estimation of impacts to natural communities likely overestimates the potential impacts to Non-Covered Species habitats, it provides a general range of level of impact.

Impacts to the dune community, riparian communities, arid west freshwater emergent marsh, and Californian warm temperate marsh/seep would be avoided through implementation of CMAs, so impacts to potential habitat for each of these species is likely greater than would actually occur. For some species, impacts would be minimized through

avoidance of the specific natural communities required for those species, e.g., dune-, spring-, or cave-restricted invertebrates, or riparian-obligate bird or amphibian species. The total impact to potential habitat across all technology types is less than 1%, with the exception of the agriculture/rural land cover areas at approximately 3.2%.

As additional analysis, Table IV.7-7 provides a cross-reference of natural communities shared between primary Covered and Non-Covered Species. The type of environmental protections afforded to certain sensitive natural communities, e.g., riparian or wetlands, that would protect Covered Species would be expected to also minimize and avoid impacts to the Non-Covered Species that may co-occur. For example, the non-covered yellow-breasted chat often occurs within the same riparian habitat as the covered southwestern willow flycatcher. Although the modeled habitat for the Covered Species does not always directly overlap the range of Non-Covered Species requiring similar habitat, this method provides a general additional guide for determining impacts and accounting for conservation measures.

Under the No Action Alternative, impacts to designated critical habitat for Non-Covered Species on BLM lands would have the potential to occur. Specifically impacts would potentially occur to approximately 30 acres of Amargosa nitrophila critical habitat, approximately 10 acres of Ash Meadow gumplant critical habitat, approximately 80 acres of Lane Mountain milk-vetch critical habitat, and 40 acres of Peninsular bighorn sheep critical habitat. In addition, the results of impacts on Non-Covered Species from the creation of noise, predator avoidance behavior, and light and glare would be similar to those described for the Covered Species under the No Action Alternative. Therefore, implementation of avoidance, minimization, and compensation measures would be needed to offset these impacts.

Table IV.7-21
BLM LUPA Impact Analysis for Natural Communities and Associated Non-Covered Species –No Action Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[3]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
California forest and woodland/ Desert conifer woodlands	Coast horned lizard, grey vireo, loggerhead shrike, yellow warbler, American badger, bighorn sheep, fringed myotis, hoary bat, long-eared myotis, pocketed free-tailed bat, spotted bat, Tehachapi pocket mouse, western mastiff bat, western small-footed myotis, Amargosa beardtongue, Charlotte's phacelia, creamy blazing star, Cushenbury buckwheat, Cushenbury milk-vetch, Cushenbury oxytheca, Kern buckwheat, Piute Mountains jewel-flower, purple-nerve cymopterus, San Bernardino Mountains dudleya, short-joint beavertail cactus, Spanish needle onion, Tracy's eriastrum, Cushenbury buckwheat	95,000	300	100	0	30	430	0.5%
Desert Scrub/ Chaparral Communities	Arroyo toad, banded gila monster, Coast horned lizard, Colorado Desert fringe-toed lizard, Couch's spadefoot, rosy boa, bald eagle, bank swallow, Crissal thrasher, Ferruginous hawk, gilded flicker, grey vireo, Le Conte's thrasher, loggerhead shrike, long-eared owl,	6,990,000	48,000	2,300	300	10,300	60,900	0.9%

Table IV.7-21
BLM LUPA Impact Analysis for Natural Communities and Associated Non-Covered Species –No Action Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[3]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	Lucy's warbler, northern harrier, yellow warbler, American badger, Arizona myotis, big free-tailed bat, bighorn sheep, cave myotis, fringed myotis, hoary bat, long-eared myotis, Palm Springs pocket mouse, pocketed free-tailed bat, spotted bat, Tehachapi pocket mouse, western mastiff bat, western small-footed myotis, western yellow bat, yellow-eared pocket mouse, Yuma myotis, Algodones Dunes sunflower, Ash Meadows gum plant, Amargosa beardtongue, bare- stem larkspur, Charlotte's phacelia, Cima milk-vetch, Coachella Valley milk-vetch, creamy blazing star, Cushenbury buckwheat, Cushenbury milk-vetch, Cushenbury oxytheca, desert pincushion, Emory's crucifixion-thorn, flat-seeded spurge, forked buckwheat, Harwood's eriastrum, Harwood's milkvetch, Inyo County star-tulip, Kelso Creek monkeyflower, Kern buckwheat, Las Animas colubrina, Lane Mountain Milk-Vetch,							

Table IV.7-21
BLM LUPA Impact Analysis for Natural Communities and Associated Non-Covered Species –No Action Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[3]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	Mojave Desert plum, Mojave milkweed, Munz's Cholla, nine-awned pappus grass, Orcutt's woody aster, Orocopia sage, Parish's club cholla, Pierson's milk-vetch, pink fairy-duster, Piute Mountains jewel-flower, purple-nerve cymopterus, Red Rock poppy, Red Rock tarplant, Robinson's monardella, Rusby's desert-mallow, sand food, Sodaville milk-vetch, short-joint beavertail cactus, Spanish needle onion, Thorne's buckwheat, Tracy's eriastrum, Utah beardtongue, white bear poppy, White-margined beardstongue, Wiggin's croton, Flat-seeded spurge, Parish's phacelia, Parish's alkali grass							
Dunes[3]/ Desert Outcrop and Badlands	Banded gila monster, barefoot gecko, Coast horned lizard, Colorado Desert fringe-toed lizard, Couch's spadefoot, rosy boa, bald eagle, bank swallow, Le Conte's thrasher, loggerhead shrike, long-eared owl, northern harrier, Amargosa vole, big free-tailed bat,	1,328,000	8,000	100	100	1,300	9,500	0.7%

Table IV.7-21
BLM LUPA Impact Analysis for Natural Communities and Associated Non-Covered Species –No Action Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[3]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	bighorn sheep, cave myotis, bat, spotted bat, western mastiff bat, Yuma myotis, Algodones Dunes sunflower, Ash Meadows gum plant, Amargosa beardtongue, Amargosa niterwort, Charlotte's phacelia, Cima milk-vetch, Coachella Valley milk-vetch, creamy blazing star, desert pincushion, Emory's crucifixion-thorn, flat-seeded spurge, forked buckwheat, Harwood's eriastrum, Harwood's milkvetch, Inyo County star-tulip, Las Animas colubrina, Mojave Desert plum, Mojave milkweed, nine-awned pappus grass, Orcutt's woody aster, Orocopia sage, Palmer's jackass clover, Parish's club cholla, Pierson's milk-vetch, pink fairy-duster, purple-nerve cymopterus, Red Rock poppy, Red Rock tarplant, Robinson's monardella, Rusby's desert-mallow, sand food, Spanish needle onion, Thorne's buckwheat, Utah beardtongue, white bear poppy, Wiggin's croton, Palmer's jackass clover, white-							

Table IV.7-21
BLM LUPA Impact Analysis for Natural Communities and Associated Non-Covered Species –No Action Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[3]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	margined beardtongue, flat-seeded spurge							
Grassland	Coast horned lizard, American peregrine falcon, bank swallow, Ferruginous hawk, long-eared owl, northern harrier, white-tailed kite, Amargosa vole, American badger, spotted bat, Cushenbury milk-vetch, Cushenbury oxytheca, short-joint beavertail cactus	29,000	100	20	0	100	220	0.8%
Riparian/ Wetlands	Arroyo toad, California red-legged frog, Coast horned lizard, Couch's spadefoot, Western pond turtle, American peregrine falcon, Arizona Bell's vireo, bald eagle, bank swallow, Crissal thrasher, gilded flicker, elf owl, Inyo California towhee, loggerhead shrike, long-eared owl, Lucy's warbler, northern harrier, redhead, vermillion flycatcher, white-tailed kite, yellow-breasted chat, yellow-headed blackbird, yellow warbler, Amargosa vole, Mojave River vole, Arizona myotis, cave myotis, fringed myotis, hoary bat, long-eared myotispocketed	940,000	6,000	350	50	1,700	8,100	0.9%

Table IV.7-21
BLM LUPA Impact Analysis for Natural Communities and Associated Non-Covered Species –No Action Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[3]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	free-tailed bat, spotted bat, western mastiff bat, western yellow bat, Yuma myotis, Ash Meadows gum plant, Inyo County star-tulip, Parish's alkali grass, Parish's phacelia, Amargosa pupfish, Amargosa speckled dace, Amargosa spring snails							
Agriculture/ Rural Land Cover	American peregrine falcon, Bank swallow, loggerhead shrike, long-eared owl, northern harrier, redhead, yellow-headed blackbird, yellow warbler, Arizona myotis, hoary bat, Tehachapi pocket mouse, western mastiff bat, western yellow bat	9,000	140	20	10	120	290	3.2%

1 Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
2 Solar impacts include ground-mounted distributed generation.
3 This amount assumes the loss of conservation value for all land fragmented by the well fields.

Notes: The natural community classification system is described in Chapter III.7 and follows CDFG 2012. Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Impact BR-5: Siting, construction, decommissioning, and operational activities could result in loss of nesting birds (violation of the federal Migratory Bird Treaty Act and California Fish and Game Code Sections 3503, 3503.5, 3511, and 3513).

Siting, construction, decommissioning, and operations of renewable energy and transmission projects would result in the removal of vegetation and other nesting habitat and cause increased human presence and noise that has the potential to cause the loss of nesting birds, which would be a violation of the federal Migratory Bird Treaty Act. The potential loss of nesting birds resulting from these activities would be adverse without application of avoidance and minimization measures. Under existing laws and regulations, renewable energy and transmission projects would be required to implement seasonal restrictions and other avoidance measures including pre-construction nesting bird surveys and impact setbacks determined necessary to avoid and minimize the loss of nesting birds.

Impact BR-6: Siting, construction, decommissioning, and operational activities would adversely affect habitat linkages and wildlife movement corridors, the movement of fish, and native wildlife nursery sites.

Species-specific habitat linkages and wildlife movement areas are a component of analysis conducted under Impact BR-4 above. Suitable habitat for each species includes areas of habitat linkages and wildlife movement. Analysis under BR-4 specifically incorporates habitat linkage information for desert tortoise, Mohave ground squirrel, and desert bighorn sheep. In addition to the species-specific analysis of impacts to suitable habitat supporting habitat linkages and wildlife movement for species, landscape level information on habitat linkages (i.e., Desert Linkage Network) and migratory bird movement are analyzed below.

Desert Linkage Network

Table IV.7-22 shows impacts to the Desert Linkage Network by ecoregion subarea anticipated under the No Action Alternative for the BLM LUPA. Overall 1.2% of the Desert Linkage Network would be impacted. The percentage of the Desert Linkage Network impacted in each subarea would range from 0% for the Panamint Death Valley, Piute Valley and Sacramento Mountains, and Owens River Valley subareas to 2.5% of the Cadiz Valley and Chocolate Mountains subarea. Overall, solar would account for 74% of the impacts to the Desert Linkage Network, wind would account for 4%, and transmission would account for 22%. Geothermal would not account for any impacts under the No Action Alternative. Wind project areas would account for proportionally greater impacts in the West Mojave and Eastern Slopes subarea (34% of the total impacts in the subarea) and Pinto Lucerne Valley and Eastern Slopes subarea (21% of the total impacts in the subarea). The magnitude of impacts to the function of habitat linkages depends on site-specific factor. Impacts to Desert Linkage Network habitat linkages would be adverse and would require

mitigation to avoid impacting habitat linkage function in the subareas where impacts are anticipated under the No Action Alternative.

Table IV.7-22
Impact Analysis for the Desert Linkage Network
Within Existing BLM Land Use Plans – No Action Alternative

Ecoregion Subarea	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Cadiz Valley and Chocolate Mountains	709,000	12,000	-	5,000	18,000
Imperial Borrego Valley	145,000	100	-	80	200
Kingston and Funeral Mountains	138,000	3,000	-	-	3,000
Mojave and Silurian Valley	371,000	8	-	700	700
Owens River Valley	15,000	-	-	-	-
Panamint Death Valley	110,000	-	-	-	-
Pinto Lucerne Valley and Eastern Slopes	149,000	100	60	100	300
Piute Valley and Sacramento Mountains	111,000	-	-	-	-
Providence and Bullion Mountains	377,000	4,000	-	200	4,000
West Mojave and Eastern Slopes	389,000	2,000	1,000	100	3,000
Total	**2,514,000**	**22,000**	**1,000**	**7,000**	**29,000**

[1] Available lands includes the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

Notes: Total reported acres include solar and ground-mounted distributed generation (GMDG), short-term and long-term wind impacts, and transmission impacts. There are no impacts from geothermal development to desert linkage network under the No Action Alternative. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Migratory Birds

Migration patterns across the Plan Area are discussed in the typical impacts section (Section IV.7.2.1.3) and quantification of operational impacts to avian and bat species are discussed in Impact BR-9. The following analysis focuses on the anticipated distribution of different technology types in relation to known migratory corridors and migratory resources in each subarea.

In the No Action, wind generation is a small proportion of the overall generation mix on BLM administered DFAs. Wind related Covered Activities on BLM managed DFAs are divide between the West Mojave and Eastern Slopes, Pinto Lucerne Valley and Cadiz and Chocolate

Mountain Subareas. Wind development would mostly occur on the eastern slopes of the Tehachapi Mountains and in the mountainous areas around Lucerne Valley. Key migratory resources affected would include routes between the passes of the Tehachapi Mountains and San Bernardino Mountains, and the temporary lakes and wetland refuges on and to the north of Edwards AFB. Smaller amounts of wind development would also occur in the Cadiz and Chocolate Mountains subarea to the north west of Blythe in the McCoy wash area. These areas are near the Colorado River migratory corridor, and may affect migratory bird movement to and from the Coachella Valley. No further wind development in Imperial Borrego Valley is anticipated in the No Action Alternative.

Solar development would mainly be focused on the BLM Solar SEZ in Cadiz and Chocolate Mountain subarea, with smaller quantities developed in the Imperial Borrego Valley subarea. The No Action Alternative would result in new solar generation facilities in the along the I-10 corridor to the west side of the Colorado River. This may give the appearance of a string of lakes on known migratory linkages for birds between the Colorado River and Coachella Valley. Similarly, development in the West Mojave and Eastern slopes, Pinto Lucerne Valley would occur in areas between the Tehachapi and San Bernardino Mountain passes, and dry lakes on Edwards AFB, as well as, the North Mojave dry lakes of China Lake, Koehn Lake, Harper Lake and Searles Lake. Development, around the Salton Sea and in the Imperial Valley, would be on the west side of the East Mesa ACEC, and include areas to the west of the Salton Sea that include the Truckhaven geothermal resource area and areas to the east of the Salton Sea in the foothills of the Chocolate Mountains. In the No Action Alternative it was assumed that extensive solar development would be undertaken on the border with Nevada in the Providence and Bullion Mountain subarea.

Adverse impacts would require each project to implement surveying and siting as well as minimization measures to ensure reduction and avoidance of migratory birds and associated resources. Further compensation measures may be necessary to offset adverse effects and would be implemented on a project-by-project basis.

Application of avoidance and minimization measures would reduce the overall impacts to migratory bird populations. It may be feasible to survey, site and monitor projects to minimize loss of habitat within the Plan Area, but residual operational impacts may not be adequately mitigated through compensation strategies. For example, where the full range of a species life cycle, i.e., overwintering, migration and breeding, is not within the jurisdiction of the permitting agencies, application of adequate compensation strategies may be infeasible. Additional steps would be necessary to ensure projects do not adversely impact migratory birds within the Plan Area. After application of the mitigation measures, operational impacts on migratory birds from the No Action Alternative would be adverse and would require mitigation.

Impact BR-7: Siting, construction, decommissioning, and operational activities would result in habitat fragmentation and isolation of populations of listed and sensitive plants and wildlife.

As discussed in the Plan-wide analysis, the construction and operation of renewable energy and transmission projects can have the potential to fragment intact and interconnected landscapes resulting in isolated patches of habitat, isolated species populations, reduced gene flow, and remaining habitat that is more exposed to the edge effects of adjacent developments. Under the No Action Alternative, renewable energy development would not be confined to DFAs and fragmentation and population isolation effects could occur anywhere renewable energy development is not prohibited and is assumed to be distributed in a pattern that follows past and current patterns. Also as described in the Plan-wide analysis, approximately 40% of the area available to renewable energy development under the No Action Alternative is characterized by moderately high terrestrial intactness to high terrestrial intactness. Siting and construction of renewable energy and transmission in these intact areas would result in adverse habitat fragmentation and population isolation effects. Other measures of fragmentation and population isolation effects include the amount of impacts on environmental gradients such as elevation, landforms, slope, and aspect. The impacts to these environmental gradients would follow the same overall pattern as Plan-wide impacts. The effects of habitat fragmentation and population isolation would be adverse and would require mitigation to avoid and minimize impacts.

Impact BR-8: Construction of generation facilities or transmission lines would result in increased avian predation of listed and sensitive wildlife species.

Higher predator densities and hence high predation rates are a documented effect of increased human development in the Plan Area. The extent to which Covered Activities contribute to increasing predation through phenomena like predator subsidization is linked to the likely extent of Covered Activities in undisturbed parts of desert.

Agricultural landscapes in the west Mojave Desert, Lucerne Valley and Imperial Borrego Valley or surrounding Blythe are already disturbed, with relatively high levels of human activity that supplement predators such as common ravens and coyotes, and support covered predator species such as resident burrowing owls and migrant Swainson's hawk. Therefore, covered operational activities in already disturbed rural and agricultural landscapes would result in increased predation, but the amount of predation increase is unknown.

However, Covered Activities in undisturbed desert habitat are likely to disproportionately supplement predators, increase predator density and consequently increase predation rates on Covered Species. The No Action alternative would result 78,000 acres of permanent

conversion of natural desert communities with 300 acres of impacts (less than 1% of the total ground disturbance) within areas characterized by disturbed land cover types.

All impacts to Kingston and Funeral Mountains, Providence and Bullion Mountains would be in natural communities, and therefore more likely to increase predation rates on susceptible species in these sub-region like desert tortoise, Mojave fringe-toed lizard, and nesting birds. Much of the development in the Cadiz and Chocolate Mountains subarea, would be expected in the solar PEIS SEZ adjacent to the I-10 corridor in eastern Riverside County. This area may already experience increased predator densities resulting from existing human development, the additional impact of further development would therefore be attenuated to a degree not currently known. However, development in more remote parts to the subarea is likely to increase predation.

Wind and solar development in the West Mojave and Eastern Slopes and the Pinto Lucerne Valley and Eastern Slopes subareas may supplement predators in undisturbed environments including parts of the Tehachapi Mountains or areas to the north of Edwards AFB. In these areas, susceptible species would include nestlings and eggs of Covered Species like tricolored blackbird, golden eagle, as well as reptiles like desert tortoise and small amphibians like the Tehachapi slender salamander and mammals like the Mohave ground squirrel.

Typical management practices for the No Action would include the development of a Common Raven control plan that would reduce project activities that increase predator subsidization. Including, removal of trash and organic waste; minimize introduction of new water sources including pooling of water from dust control; removal of carcasses from bird and bat collisions; and reduction in new nesting and perching sites where feasible.

The level of impact on Non-Covered Species would be similar to that discussed for the Covered Species.

Impact BR-9: Operational activities would result in avian and bat injury and mortality from collisions, thermal flux or electrocution at generation and transmission facilities.

This section summarizes the range of impacts to bird and bat species within the Plan Area that occur as a consequence of wind turbine operation. The range of collision rates calculated in Table IV.7-23 are indicative of the overall annual collision rates for all bird and bat species, not just Covered Species. The range of collision rates is estimated for the final full build-out of wind over the life of the Plan and is based on the range of collision rates in existing published and gray literature. While it is possible to provide a range of possible collision rates, it is not feasible to estimate the collision rate for each Covered Species, but only infer the propensity for a species to be at risk from collision by the overlap between the species habitat models and the likely distribution of wind generation across the subarea

Overall, the No Action Alternative would result in a median of 3,000 collisions per year for birds and 15,000 collisions per year for bats across the Plan Area. The expected distribution of wind generation in the No Action Alternative would result in 75% of all collisions occurring in West Mojave and Eastern slopes, and 6% of collisions could occur in Pinto Lucerne Valley and Eastern Slopes, with 19% of all collision likely to occur in Imperial Borrego Valley.

In the No Action Alternative, development in the West Mojave and Eastern Slopes would affect Bendire's thrasher, burrowing owl, California condor, golden eagle, least Bell's vireo, mountain plover, southwestern willow flycatcher, Swainson's hawk, and tricolored blackbird. Whereas, development in the Pinto Lucerne Valley and Eastern Slopes subarea would mainly affect golden eagle territories and important Bendire's thrasher habitat. In Imperial Valley subarea development of wind facilities would disproportionately affect overwintering migratory birds such as sandhill crane and, mountain plover, with fewer impacts on wetland birds like Yuma clapper rail and California black rail. Impacts to California-leaf nosed bat, pallid bat and Townsend's big-eared bat may occur throughout the plan area.

Impacts from wind projects would be analyzed on a project by project basis. Wind projects would develop bird and bat management plans. Each plan would require the implementation of avoidance, minimization, and compensation measures to offset collision impacts.

Table IV.7-23
BLM LUPA Impact Analysis for Estimated Range of Collisions per Year for Birds and Bats by Subarea – No Action Alternative

Ecoregion Subarea	# Turbines	Birds (Collisions/Yr)[1]			Bats (Collisions/Yr)[1]		
		Low	*Median*	*High*	*Low*	*Median*	*High*
Cadiz Valley and Chocolate Mountains	0	-	-	-	-	-	-
Imperial Borrego Valley	124	200	600	2,000	200	3,000	17,000
Kingston and Funeral Mountains	0	-	-	-	-	-	-
Mojave and Silurian Valley	0	-	-	-	-	-	-
Owens River Valley	0	-	-	-	-	-	-
Panamint Death Valley	0	-	-	-	-	-	-
Pinto Lucerne Valley and Eastern Slopes	37	100	200	700	100	800	5,000
Piute Valley and Sacramento Mountains	0	-	-	-	-	-	-
Providence and Bullion Mountains	0		-	-	-	-	-

Table IV.7-23
BLM LUPA Impact Analysis for Estimated Range of Collisions per Year for Birds and Bats by Subarea – No Action Alternative

Ecoregion Subarea	# Turbines	Birds (Collisions/Yr)[1]			Bats (Collisions/Yr)[1]		
		Low	*Median*	*High*	*Low*	*Median*	*High*
West Mojave and Eastern Slopes	492	700	3,000	9,000	1,000	11,000	69,000
Grand Total	**652**	**1,000**	**3,000**	**13,000**	**1,000**	**15,000**	**91,000**

[1] Method for estimation of annual bird and bat collision rates described in Section IV.7.1.1.2 and discussed in more detail in Section IV.7.2.1.3

Note: The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table

Solar

Under the No Action Alternative impacts to avian and bat species from solar development assume full build out of the anticipated solar capacity. BLM administered lands would see a 6.6-fold increase in collision risks relative to baseline. Approximately 32% of the collision risks would occur in the Cadiz Valley and Chocolate Mountains, with, 23% in Imperial Borrego Valley, 31% in West Mojave and Eastern Slopes, and the remaining 8% spread across the rest of the Plan Area.

The development in the Cadiz Valley and Chocolate Mountains subarea would occur in the solar PEIS SEZ adjacent to the I-10 corridor, and in McCoy Wash. Species impacted by Covered Activities include Bendire's thrasher, burrowing owl, Gila woodpecker, golden eagle, greater sandhill crane, and mountain plover. Anticipated impacts in Imperial Borrego Valley would occur in three BLM managed areas: the western foothills of the Chocolate Mountains; land along the western edge of East Mesa ACEC; and in BLM managed lands on the west side of the Salton Sea species. Birds and bats at risk from solar impacts include Bendire's thrasher, burrowing owl, California black rail, Gila woodpecker, golden eagle, greater sandhill crane, mountain plover, southwestern willow flycatcher, Swainson's hawk, and Yuma clapper rail, pallid bat, California leaf-nosed bat, Townsend's big-eared bat. Development in the West Mojave and Eastern Slopes subareas would occur in the Tehachapi Mountains and areas to the north California City, and along HWY 395. In these areas, susceptible species would include California condor, tricolored blackbird, golden eagle, mountain plover, Bendire's thrasher, burrowing owls and Swainson's hawk. Affected bat species that include pallid bat, California leaf-nosed bat, Townsend's big-eared bat. Impacts from Covered Activities associated with solar generation in the Pinto Lucerne

Valley and Eastern Slopes subarea would be spread throughout the Lucerne Valley. Species impacted would include golden eagle, Bendire's thrasher, and burrowing owl.

Transmission

The transmission collision and electrocution impacts would occur from generation tie lines (collector lines), new substations, and major transmission lines (delivery lines) that deliver power to major load centers. The distribution of impacts from collector lines would mostly occur within DFAs and be similar in distribution to the generation facilities. Most of the affected areas would be in West Mojave and Eastern Slopes, Cadiz Valley and Chocolate Mountains, and the Imperial Borrego Valley subareas, with 5,000 acres, 14,000 acres, 12,000 acres of terrestrial impacts anticipated respectively. The remaining 5,000 acres of terrestrial impacts would be spread throughout Mojave and Silurian Valley and Providence and Bullion Mountains subareas.

Both large transmission lines and the network of smaller collector lines would present collision and electrocution hazard to bird Covered Species. In particular, lines running perpendicular to migratory corridors or close to bird refuges would represent a greater hazard. Such lines would include those anticipated to run parallel to the Tehachapi Mountains and those that would cross the Tehachapi mountain passes. In addition, anticipated delivery lines in Chuckwalla Valley would run parallel to I-10 corridor in the existing transmission corridors. In the Imperial Borrego Valley subarea, lines would run along the along the eastern side of Salton Sea in existing transmission corridors that run parallel to the foothills of the Chocolate Mountains; and would also run from east to west between the Imperial Valley and the San Diego area. All these lines would represent additional risk to migrating and overwintering covered avian species, due to their location, especially in bad weather when flocks of migratory birds may be forced down.

Impacts from transmission projects would be analyzed on a project by project basis. Development of lines would follow recommendations of APLIC, where feasible, Avian protection plan would be developed for each project on a project by project basis. Each project would result in adverse impacts to avian species and would require the implementation of avoidance, minimization, and compensation measures to offset collision impacts.

The level of impact on Non-Covered Species would be similar to Covered Species for each of the renewable energy types discussed above. Under the No Action Alternative, projects would be analyzed on a case-by-case basis and preparation and implementation of plans that detail avoidance, minimization, and compensation measures, are expected to address and offset collision impacts to Non-covered bird and bat species.

Operational Impacts Take Estimates for Covered Avian and Bat Species

The following section summarizes the initial estimates for take of Covered Species by operational activities that would require compensatory mitigation. Take estimates integrate all sources of mortality for each technology discussed above.

Table IV.7-24
BLM LUPA Estimated Total Take for Covered Avian and Bat Species – No Action Alternative

Covered Bird and Bat Species	Solar Impact	Wind Impact	Geothermal Impact	Total Impact
Bendire's thrasher	10	10	0	20
Burrowing owl	50	40	0	90
California condor	0	0	0	0
California black rail	30	0	0	30
Gila woodpecker	30	0	0	30
Golden eagle	n/a	n/a	n/a	n/a
Least Bell's vireo	30	0	0	30
Mountain plover	30	20	0	50
Greater sandhill crane	10	0	0	10
Southwestern willow flycatcher	50	0	0	50
Swainson's hawk	10	10	0	20
Tricolored blackbird	10	30	0	40
Western yellow billed cuckoo	30	0	0	30
Yuma clapper rail	30	0	0	30
Grand Total Avian Species	**300**	**120**	**0**	**420**
California leaf-nosed bat	10	0	0	10
Pallid bat	10	50	0	60
Townsend's big-eared bat	30	10	0	40
Grand Total Bat Species	**50**	**60**	**0**	**110**

[1] California condor would not be permitted under No Action Alterative, as it is fully protected species.
[2] Take of Golden Eagle would be permitted based on current Eagle Act permit regulations.

IV.7.3.1.2.1 Impacts of Changes to BLM Land Designations

The No Action Alternative has no reserve design, but without approval of an action alternative, there would be continued protection and management of existing protected areas (e.g., Wilderness areas, National and State Parks, etc.) and existing BLM land designation areas on BLM-administered lands. These existing plans identify various land designations such as existing ACECs, SRMAs, Management Areas, Wildlife Habitat Management Areas, National Scenic and Historic Trails, and Wild and Scenic Rivers with

associated management actions. Under the No Action Alternative, project-specific mitigation required for renewable energy and transmission projects developed under the No Action that results in habitat conservation cannot be quantified and was not included in this analysis. The following provides an analysis of the conservation provided by existing protected areas and BLM land designations on BLM-administered lands in the DRECP area, organized by landscape, natural communities, and species.

Existing BLM land use plans have also established Special Recreation Management Areas (SRMAs) and have inventoried and managed lands with Wilderness Characteristics. These designations and management areas are overlays that specify particular management and uses for specific areas. These land designations may co-occur with the other BLM designations (e.g., ACECs). Where these land designations do no co-occur with existing protected areas or ACECs on BLM-administered lands, they were not included in the conservation analysis for biological resources provided in this section.

Landscape

Habitat Linkages

Table IV.7-25 shows the conservation of the Desert Linkage Network under the No Action Alternative for the BLM LUPA. Overall, 53% (1,338,000 acres) of the Desert Linkage Network habitat linkage areas occur in areas of existing conservation or in existing BLM conservation designations. Conservation of habitat linkage areas in the subareas would be variable, ranging from 800 acres (5%) in the Owens River Valley to 90,000 acres (81%) in the Piute Valley and Sacramento Mountains subarea. Overall, existing BLM conservation designations account for 39% of the total conservation and Existing Protected Areas account for 61%.

Table IV.7-25
Conservation Analysis for the Desert Linkage Network
Within Existing BLM Land Use Plans - No Action Alternative

Ecoregion Subarea	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
Cadiz Valley and Chocolate Mountains	709,000	170,000	210,000	380,000
Imperial Borrego Valley	145,000	14,000	1,000	15,000
Kingston and Funeral Mountains	138,000	9,000	43,000	52,000
Mojave and Silurian Valley	371,000	133,000	159,000	292,000
Owens River Valley	15,000	40	700	800
Panamint Death Valley	110,000	27,000	60	27,000
Pinto Lucerne Valley and Eastern Slopes	149,000	2,000	22,000	24,000

Table IV.7-25
Conservation Analysis for the Desert Linkage Network Within Existing BLM Land Use Plans - No Action Alternative

Ecoregion Subarea	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
Piute Valley and Sacramento Mountains	111,000	8,000	81,000	90,000
Providence and Bullion Mountains	377,000	139,000	58,000	197,000
West Mojave and Eastern Slopes	389,000	13,000	247,000	261,000
Total	**2,514,000**	**516,000**	**823,000**	**1,338,000**

1 Available lands includes the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
2 Existing Protected Areas include Legislatively and Legally Protected Lands (LLPAs) that overlap with BLM-administered land, such as wilderness areas.
3 Existing BLM Land Use Plan Conservation Designations include existing Areas of Critical Environmental Concern (ACECs). Conservation reported here includes existing BLM Land Use Plan conservation designations on BLM-administered lands only.

Notes: Overlaps of Existing BLM conservation designations with Existing Protected Areas are reported in the Existing Protected Areas acreages. Acreages are reported within available lands, which includes the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Hydrological Resources

A conservation analysis for hydrological resources is provided below, including playa, seep/spring, and the four major rivers in the Plan Area (i.e., Amargosa, Colorado, Mojave and Owens) for the No Action Alternative on BLM land. Conservation of riparian areas and wetlands, which co-occur with many of these hydrological resources is provided below under Natural Communities.

Playa

Playa totals 161,000 acres in the Plan Area on BLM land. Overall, 16% (26,000 acres) would be conserved under the No Action Alternative on BLM land. Existing Conservation would account for 40% of the conservation, while existing ACECs would account for 60%.

Seep/Spring

There are 158 seep/spring locations in the Plan Area on BLM land. Overall, 62% (98 locations) of the seep/spring locations would be conserved under the No Action Alternative on BLM land. The conservation of seep/spring under the No Action Alternative on BLM land would be relatively high in most subareas. These include Cadiz

Valley and Chocolate Mountains (95%, 5 locations), Imperial Borrego Valley (32%, 1 location), Kingston and Funeral Mountains (39%, 10 locations), Mojave and Silurian Valley (76%, 8 locations), Owens River Valley (12%, 1 location), Panamint Death Valley (63%, 8 locations), Piute Valley and Sacramento Mountains (83%, 13 locations), Pinto Lucerne Valley and Eastern Slopes (37%, 11 locations), Providence and Bullion Mountains (100%, 23 locations), and West Mojave and Eastern Slopes (69%, 18 locations). Overall, Existing Conservation would account for 46% of the conservation of seep/spring, while existing ACECs would account for 54%.

Major Rivers

Overall, 81% of the major rivers would be conserved under the No Action Alternative on BLM land, including 83% of the Amargosa River and 77% of the Mojave River. Existing Conservation would account for 43% and existing ACECs would account for 57%.

Dune and Sand Resources

Overall, 40% (394,000 acres) of dunes and sand resources would be conserved under the No Action Alternative on BLM land. At least 50% of dunes and sand resources would be conserved in 3 subareas in the Plan Area that contain substantial acreage of dunes and sand resources, including Imperial Borrego Valley at 60% (69,000 acres), Mojave and Silurian Valley at 80% (36,000 acres), and West Mojave and Eastern Slopes at 96% (8,000 acres). Subareas with lower conservation of dunes and sand resources under the No Action Alternative on BLM land are Cadiz Valley and Chocolate Mountains at 34% (178,000 acres), Kingston and Funeral Mountains at 46% (20,000 acres), Providence and Bullion Mountains at 41% (77,000 acres), and Pinto Lucerne Valley and Eastern Slopes at 37% (5,000 acres).

Environmental Gradients

The conservation analysis addresses four types of environmental gradients in the Plan Area: elevation, landforms, slope, and aspect. The conservation of these four environmental gradients under the No Action Alternative on BLM Land would follow the same overall pattern as Plan-wide conservation.

Natural Communities

Table IV.7-26 shows the conservation to natural communities under the No Action Alternative on BLM land.

California forest and woodlands

Overall, approximately 21,000 acres (457%) of California forest and woodlands would be conserved under the No Action Alternative on BLM Lands, which is approximately 71% of

the conserved acreage of California forest and woodland compared to the Plan-wide conservation of this general community. The majority of conservation would occur in the Pinto Lucerne Valley and Eastern Slopes subarea.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 6,000 acres (33%) of chaparral and coastal scrubs would be conserved under the No Action Alternative on BLM Lands, which is more proportionally than would be conserved Plan-wide, but is approximately 35% of the conserved acreage of chaparral and coastal scrubs compared to the Plan-wide conservation of this general community. Conservation would occur in the Pinto Lucerne Valley and Eastern Slopes, Mojave and Silurian Valley, and West Mojave and Eastern Slopes subareas.

Desert conifer woodlands

Overall, approximately 35,000 acres (70%) of desert conifer woodlands would be conserved under the No Action Alternative on BLM Lands, which is more proportionally than would be conserved Plan-wide, but is only approximately 21% of the conserved acreage of desert conifer woodlands compared to the Plan-wide conservation of this general community. The majority of conservation would occur in the Pinto Lucerne Valley and Eastern Slopes, Kingston and Funeral Mountains, and West Mojave and Eastern Slopes subareas.

Desert outcrop and badlands

Overall, approximately 802,000 acres (67%) of desert outcrop and badlands would be conserved under the No Action Alternative on BLM Land, which is the same proportion of available lands conserved Plan-wide, but is approximately 74% of the total acreage of conserved desert outcrop and badlands Plan-wide. The majority of conservation would occur in the Cadiz Valley and Chocolate Mountains and Piute Valley and Sacramento Mountains subareas.

Desert scrubs

Overall, approximately 3,970,000 acres (57%) of desert scrubs would be conserved under the No Action Alternative on BLM Land, which is roughly the same proportion of available lands conserved Plan-wide, but is approximately 52% of the total acreage of conserved desert scrubs Plan-wide. The majority of conservation would occur in the Cadiz Valley and Chocolate Mountains, Providence and Bullion Mountains, Kingston and Funeral Mountains, and Mojave and Silurian Valley subareas.

Dunes

Overall, approximately 66,000 acres (53%) of dunes would be conserved under the No Action Alternative on BLM Land, which is both a lesser proportion of available lands conserved Plan-wide and only accounts for approximately 36% of the total acreage of conserved dunes Plan-wide. The majority of the conservation would occur in the Imperial Borrego Valley subarea.

Grasslands

Overall, approximately 14,000 acres (49%) of grasslands would be conserved under the No Action Alternative on BLM Land, which is a greater proportion of available lands compared to that conserved Plan-wide, but is approximately 45% of the total acreage of conserved grasslands Plan-wide. The majority of conservation would occur in the Pinto Lucerne Valley and Eastern Slopes subarea.

Riparian

Overall, approximately 311,000 acres (48%) of riparian communities would be conserved under the No Action Alternative on BLM Land, which is slighter less proportionally of available lands than is conserved Plan-wide and accounts for approximately 63% of the total acreage of conserved riparian communities Plan-wide. Most of the conservation would occur in the Cadiz Valley and Chocolate Mountains and Piute Valley and Sacramento Mountains subareas.

Wetlands

Overall, approximately 98,000 acres (34%) of wetland communities would be conserved under the No Action Alternative on BLM Land, which accounts for approximately 32% of the total acreage of conserved wetland communities Plan-wide. Most of the conservation would occur in the West Mojave and Eastern Slopes, Mojave and Silurian Valley, and Kingston and Funeral Mountains subareas.

Table IV.7-26
Conservation Analysis for Natural Communities
Within Existing BLM Land Use Plans – No Action Alternative

Natural Community	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
California forest and woodland				
Californian broadleaf forest and woodland	11,000	500	400	900

Table IV.7-26
Conservation Analysis for Natural Communities Within Existing BLM Land Use Plans – No Action Alternative

Natural Community	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
Californian montane conifer forest	34,000	18,000	2,000	20,000
Chaparral and coastal scrub community (Cismontane scrub)				
Californian mesic chaparral	500	—	—	—
Californian pre-montane chaparral	300	—	20	20
Californian xeric chaparral	5,000	2,000	10	2,000
Central and south coastal California seral scrub	20	—	—	—
Central and South Coastal Californian coastal sage scrub	13,000	2,000	2,000	4,000
Western Mojave and Western Sonoran Desert borderland chaparral	200	20	—	20
Desert conifer woodlands				
Great Basin Pinyon - Juniper Woodland	50,000	27,000	8,000	35,000
Desert outcrop and badlands				
North American warm desert bedrock cliff and outcrop	1,203,000	563,000	239,000	802,000
Desert Scrub				
Arizonan upland Sonoran desert scrub	3,000	1,000	200	2,000
Intermontane deep or well-drained soil scrub	69,000	16,000	27,000	42,000
Intermontane seral shrubland	5,000	10	1,000	1,000
Inter-Mountain Dry Shrubland and Grassland	282,000	73,000	68,000	141,000
Intermountain Mountain Big Sagebrush Shrubland and steppe	24,000	4,000	7,000	11,000
Lower Bajada and Fan Mojavean - Sonoran desert scrub	6,078,000	1,975,000	1,493,000	3,468,000
Mojave and Great Basin upper bajada and toeslope	407,000	164,000	111,000	275,000
Shadscale - saltbush cool semi-desert scrub	103,000	17,000	13,000	30,000

Table IV.7-26
Conservation Analysis for Natural Communities Within Existing BLM Land Use Plans – No Action Alternative

Natural Community	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
Southern Great Basin semi-desert grassland	50	—	40	40
Dunes				
North American warm desert dunes and sand flats	125,000	34,000	32,000	66,000
Grassland				
California Annual and Perennial Grassland	28,000	10,000	4,000	14,000
California annual forb/grass vegetation	1,000	0	700	700
Riparian				
Madrean Warm Semi-Desert Wash Woodland/Scrub	502,000	103,000	139,000	243,000
Mojavean semi-desert wash scrub	11,000	1,000	6,000	7,000
Sonoran-Coloradan semi-desert wash woodland/scrub	122,000	28,000	31,000	59,000
Southwestern North American riparian evergreen and deciduous woodland	400	0	70	70
Southwestern North American riparian/wash scrub	10,000	600	2,000	3,000
Wetland				
Arid West freshwater emergent marsh	10	—	—	—
Californian warm temperate marsh/seep	0	—	0	0
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	146,000	13,000	26,000	39,000
Open Water	700	0	60	70
Playa	26,000	300	60	400
Southwestern North American salt basin and high marsh	121,000	2,000	57,000	59,000
Wetland	100	—	10	10

Table IV.7-26
Conservation Analysis for Natural Communities Within Existing BLM Land Use Plans – No Action Alternative

Natural Community	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
Other Land Cover				
Agriculture	6,000	0	400	400
Developed and Disturbed Areas	44,000	200	4,589	5,000
Rural	3,000	0	40	40
Not Mapped	700	0	40	40
Total	**9,433,000**	**3,054,000**	**2,275,000**	**5,329,000**

1 Available lands includes the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

2 Existing Protected Areas include Legislatively and Legally Protected Lands (LLPAs) that overlap with BLM-administered land, such as wilderness areas.

3 Existing BLM Land Use Plan Conservation Designations include existing Areas of Critical Environmental Concern (ACECs) on BLM-administered lands. Conservation reported here includes existing BLM Land Use Plan conservation designations on BLM-administered lands only.

Notes: Overlaps of Existing BLM conservation designations with Existing Protected Areas are reported in the Existing Protected Areas acreages. Acreages are reported within available lands on BLM-administered lands. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Covered Species Habitat

Table IV.7-27 shows the conservation of Covered Species habitat under the BLM No Action Alternative. Generally, the percent conservation of Covered Species habitat in available lands is highly variable,. The majority of the habitat conserved under the No Action Alternative is associated with the Kings and Funeral Mountains, Providence and Bullion Mountains, Cadiz Valley and Chocolate Mountains and Mojave and Silurian Valley subareas.

Much of the habitats for Agassiz's desert tortoise and Mojave fringe-toed lizard are widespread throughout the subareas and occur in both the BLM Existing ACECs and Existing Protected Areas. Flat-tailed horned lizard habitat is only conserved in the Imperial Borrego Valley, mostly in BLM Existing ACECs. Tehachapi slender salamander habitat occurs in the Tehachapi Mountains where conservation is primarily composed of BLM Existing ACECs.

The majority of the habitat conservation of covered bird species under the No Action Alternative is in Existing Protected Areas but varies across ecoregion subareas.

California condor mainly occurs in the West Mojave and Eastern Slopes subarea so the majority of conservation is also in this subarea with most of the conserved acreage in BLM

Existing ACECs. Golden eagle has the largest total conservation of suitable habitat for all covered bird species. The conservation of golden eagle is widespread in the Plan Area with most of the conservation in Existing Protected Areas. Swainson's hawk is primarily associated with the West Mojave and Eastern Slopes and Owens River Valley subareas; of these subareas, the majority of suitable habitat is conserved in BLM Existing ACECs.

Gila woodpecker is mainly conserved in the Cadiz Valley and Chocolate Mountains subarea and most of the conserved areas are in Existing Protected Areas. Conservation of mountain plover suitable habitat is mostly in BLM Existing ACECs in the West Mojave and Eastern Slopes subarea.

Conservation of suitable habitat for desert pupfish is mostly in the Imperial Borrego Valley in BLM Existing ACECs. Mohave tui chub suitable habitat is not conserved under the BLM No Action Alternative. All conservation of suitable habitat for Owens pupfish (8%) and Owens tui chub (8%) occurs within Existing Protected Areas under the BLM No Action Alternative.

Conservation of suitable habitat for bighorn sheep, both inter-mountain and mountain habitat, is widespread and is divided between BLM Existing ACECs and Existing Protected Areas. At least half of the conservation of burro deer, desert kit fox and Mohave ground squirrel, suitable habitat is from BLM Existing ACECs. Suitable habitat for the covered bat species—California leaf-nosed bat, pallid bat, and Townsend's big-eared bat—is widespread and mainly conserved in Existing Protected Areas.

Conservation of plant species ranges from less than 3% of suitable habitat for Owens Valley checkerbloom to 91% of suitable habitat for triple-ribbed milk-vetch. The proportion of suitable habitat conserved in Existing Protected Areas and BLM Existing ACECs conservation varies by species.

Table IV.7-27
Conservation Analysis for Species Habitat Within
Existing BLM Land Use Plans – No Action Alternative

Species	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
Amphibian/Reptile				
Agassiz's desert tortoise	5,763,000	1,850,000	1,802,000	3,652,000
Flat-tailed horned lizard	422,000	36,000	128,000	163,000
Mojave fringe-toed lizard	733,000	212,000	82,000	293,000
Tehachapi slender salamander	7,000	—	1,000	1,000

Table IV.7-27
Conservation Analysis for Species Habitat Within Existing BLM Land Use Plans – No Action Alternative

Species	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
Bird				
Bendire's thrasher	772,000	266,000	241,000	506,000
Burrowing owl	1,695,000	142,000	669,000	811,000
California black rail	31,000	1,000	6,000	7,000
California condor	243,000	37,000	95,000	132,000
Gila woodpecker	38,000	700	2,000	3,000
Golden eagle - foraging	3,916,000	1,214,000	1,183,000	2,397,000
Golden eagle - nesting	2,405,000	1,322,000	315,000	1,637,000
Greater sandhill crane	3,000	0	300	300
Least Bell's vireo	69,000	28,000	19,000	46,000
Mountain plover	7,000	80	2,000	2,000
Southwestern willow flycatcher	46,000	5,000	5,000	10,000
Swainson's hawk	113,000	3,000	19,000	22,000
Tricolored Blackbird	13,000	5,000	1,000	6,000
Western yellow-billed cuckoo	19,000	4,000	4,000	8,000
Yuma clapper rail	5,000	30	1,000	1,000
Fish				
Desert pupfish	500	20	90	100
Mohave tui chub	—	—	—	—
Owens pupfish	4,000	300	—	300
Owens tui chub	4,000	300	—	300
Mammal				
Bighorn sheep – inter-mountain habitat	2,199,000	766,000	453,000	1,220,000
Bighorn sheep – mountain habitat	3,567,000	1,807,000	525,000	2,332,000
California leaf-nosed bat	4,446,000	1,414,000	1,095,000	2,509,000
Mohave ground squirrel	1,010,000	94,000	500,000	594,000
Pallid bat	8,908,000	2,978,000	2,157,000	5,135,000
Townsend's big-eared bat	7,564,000	2,288,000	1,788,000	4,076,000
Plant				
Alkali mariposa-lily	2,000	0	300	300
Bakersfield cactus	77,000	3,000	47,000	50,000
Barstow woolly sunflower	72,000	400	56,000	56,000

Table IV.7-27
Conservation Analysis for Species Habitat Within Existing BLM Land Use Plans – No Action Alternative

Species	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
Desert cymopterus	67,000	4,000	54,000	57,000
Little San Bernardino Mountains linanthus	73,000	6,000	2,000	9,000
Mojave monkeyflower	115,000	23,000	71,000	94,000
Mojave Tarplant	136,000	29,000	56,000	85,000
Owens Valley checkerbloom	55,000	2,000	300	2,000
Parish's daisy	85,000	34,000	5,000	39,000
Triple-ribbed milk-vetch	4,000	4,000	0	4,000

1 Available lands includes the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

2 Existing Protected Areas include Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs).

3 Existing BLM Land Use Plan Conservation Designations include existing Areas of Critical Environmental Concern (ACECs) on BLM-administered lands. Conservation reported here includes existing BLM Land Use Plan conservation designations on BLM-administered lands only.

Notes: Overlaps of Existing BLM conservation designations with Existing Protected Areas are reported in the Existing Protected Areas acreages. Acreages are reported within available lands on BLM-administered lands. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For Agassiz's desert tortoise, desert tortoise important areas were identified that include tortoise conservation areas (TCAs), desert tortoise linkages, and desert tortoise high priority habitat (see desert tortoise BGOs in Appendix C). Table IV.7-28 provides a conservation analysis for these desert tortoise important areas, organized by desert tortoise Recovery Units: Colorado Desert, Eastern Mojave, and Western Mojave. Within the Colorado Desert Recovery Unit, 71% of TCAs, linkage habitat, and high priority habitat would be conserved under the No Action Alternative on BLM land. Within the Eastern Mojave Recovery Unit, 67% of the important areas would be conserved under the No Action Alternative on BLM land. Within the Western Mojave Recovery Unit, 75% of TCAs and linkage habitat would be conserved under the No Action Alternative on BLM land. Existing federal laws and regulations would require avoidance, minimization, and compensation for impacts to this federally listed species that would likely contribute additional conservation than is reported here.

Table IV.7-28
Conservation Analysis for Desert Tortoise Important Areas Within Existing BLM Land Use Plans – No Action Alternative

Recovery Unit	Reserve	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
Colorado Desert	High Priority Habitat	354,000	156,000	0	156,000
	Linkage	406,000	126,000	4,000	129,000
	TCA	1,728,000	454,000	1,021,000	1,475,000
Colorado Desert Total		*2,488,000*	*735,000*	*1,025,000*	*1,760,000*
Eastern Mojave	Linkage	728,000	418,000	13,000	430,000
	TCA	239,000	56,000	161,000	217,000
Eastern Mojave Total		*967,000*	*474,000*	*174,000*	*648,000*
Western Mojave	Linkage	797,000	368,000	52,000	420,000
	TCA	964,000	129,000	776,000	905,000
Western Mojave Total		*1,761,000*	*498,000*	*828,000*	*1,325,000*
Total		**5,216,000**	**1,707,000**	**2,026,000**	**3,733,000**

1 Available lands includes the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

2 Existing Protected Areas include Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs).

3 Existing BLM Land Use Plan Conservation Designations include existing Areas of Critical Environmental Concern (ACECs) on BLM-administered lands. Conservation reported here includes existing BLM Land Use Plan conservation designations on BLM-administered lands only.

Notes: Overlaps of Existing BLM conservation designations with Existing Protected Areas are reported in the Existing Protected Areas acreages. Acreages are reported within available lands on BLM-administered lands. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For Mohave ground squirrel, Mohave ground squirrel important areas were identified that include key population centers, linkages, expansion areas, and climate change extension areas (see Mohave ground squirrel BGOs in Appendix C). Table IV.7-29 provides a conservation analysis for these Mohave ground squirrel important areas. Approximately 64% of key population centers and 43% of linkages would be conserved under the No Action Alternative on BLM land. Expansion areas and climate change extension areas would be conserved at 53% and 87% respectively on BLM land. Existing federal laws and regulations would require avoidance, minimization, and compensation for impacts to this federally sensitive species that would likely contribute additional conservation than is reported here.

Table IV.7-29
Conservation Analysis for Mohave Ground Squirrel Important Areas Within Existing BLM Land Use Plans – No Action Alternative

Mohave Ground Squirrel Important Area Type	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
Key Population Center	300,000	18,000	173,000	191,000
Linkage	278,000	24,000	95,000	119,000
Expansion Area	93,000	5,000	43,000	49,000
Climate Change Extension	282,000	45,000	202,000	247,000
Total	**953,000**	**93,000**	**513,000**	**605,000**

1 Available lands includes the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

2 Existing Protected Areas include Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs).

3 Existing BLM Land Use Plan Conservation Designations include existing Areas of Critical Environmental Concern (ACECs) on BLM-administered land. Conservation reported here includes existing BLM Land Use Plan conservation designations on BLM-administered lands only.

Notes: Overlaps of Existing BLM conservation designations with Existing Protected Areas are reported in the Existing Protected Areas acreages. Acreages are reported within available lands on BLM-administered land. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Non-Covered Species Critical Habitat

Ten Non-Covered Species have Critical Habitat within BLM LUPA Lands. Table IV.7-30 shows the total amount of Critical Habitat and the amount within each LUPA conservation designation for Non-Covered Species. These conservation designations are considered beneficial impacts for biological resources. With the exception of arroyo toad, all or a substantial portion of each species' Critical Habitat in the BLM LUPA Lands would be within one of the conservation designations. Critical Habitat for Pierson's milk-vetch and bighorn sheep occurs mostly within existing conservation, but mostly within National Conservation Lands for the other species. Critical Habitat for the Pierson's milk-vetch is managed under the Imperial Sand Dunes RAMP, which provides protections for critical habitat within conservation areas and areas designated as closed to motorized (e.g. off-highway vehicle) use.

Table IV.7-30
Conservation Analysis for Critical Habitat within Existing BLM Land Use Plans for Non-Covered Species – No Action Alternative

Species	Available Lands[1]	Existing Protected Areas (acres)[2]	Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
Amargosa nitrophila	1,000	0	1,000	1,000
Amargosa vole	4,000	1,000	2,000	3,000
Arroyo toad	30	0	0	0
Ash Meadows gumplant	300	0	300	300
Cushenbury buckwheat	400	0	400	430
Cushenbury milk-vetch	900	0	800	800
Cushenbury oxytheca	80	0	80	80
Lane Mountain milk-vetch	10,000	0	10,000	10,000
Pierson's milk-vetch	12,000	3,000	9,000[4]	12,000
Peninsular bighorn sheep	7,000	5,000	300	5,300

1 Available lands includes the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

2 Existing Protected Areas include Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs).

3 Existing BLM Land Use Plan conservation designation reports the conservation in the full existing Areas of Critical Environmental Concern (ACECs) designation, which includes BLM and non-BLM inholdings within the designation. Of the approximately 2,966,000 acres of Existing BLM Land Use Plan conservation designations in the Plan Area, approximately 2,395,000 acres occur on BLM-administered lands and approximately 571,000 acres occur on non-BLM inholding lands. Section IV.7.3.1.2 provides a conservation analysis of existing BLM Land Use Plan conservation designations under the No Action Alternative on BLM-administered lands only.

4 Approximately 9,000 acres protected within areas designated as closed to motorized vehicles in the Imperial Sand Dunes RAMP. The ISDRA RAMP is not considered part of the DRECP decision area.

Notes: Overlaps of Existing BLM conservation designations with Existing Protected Areas are reported in the Existing Protected Areas acreages. Acreages are reported within available lands, which includes the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

IV.7.3.1.3 Impacts of Natural Community Conservation Plan in No Action Alternative

The NCCP would apply to all lands within the Plan Area. In the absence of Plan implementation, the NCCP would not be approved and no incidental take permits would be issued under the NCCP. Projects would continue to be considered by the appropriate lead agency on an individual basis. The impacts that would occur in the absence of the NCCP would be the same as those described in Section IV.7.3.1.1.1 (Plan-wide analysis).

IV.7.3.1.4 Impacts of General Conservation Plan in No Action Alternative

As described in Volume II, the GCP would apply to nonfederal lands in the Plan Area. In the absence of Plan implementation, the GCP would not be approved and no incidental take permits would be issued under the GCP. Projects would continue to be considered by the appropriate lead agency on an individual basis. The impacts that would occur in the absence of the GCP would be the same as those described in Section IV.7.3.1.1.1 (Plan-wide analysis), but would be specific to nonfederal lands.

Impact Assessment

The following provides the assessment of impacts and mitigation for renewable energy and transmission development on nonfederal lands under the No Action Alternative. Impacts are organized by biological resources impact statement (i.e., BR-1 through BR-9).

Impact BR-1: Siting, construction, decommissioning, and operational activities would result in loss of native vegetation.

Table IV.7-31 shows the impacts to natural communities under the No Action Alternative under the GCP. An effects summary by general community is provided below.

<u>California forest and woodlands</u>

Overall, approximately 800 acres of California forest and woodlands would be impacted under the No Action Alternative under the GCP. Most of this impact would be from solar development in the West Mojave and Eastern Slopes subarea, but there would also be impacts from wind and transmission development in the West Mojave and Eastern Slopes subarea and minimal impacts from solar and transmission development in the Pinto Lucerne Valley and Eastern Slopes subarea. Impacts to this community may have an adverse effect and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

<u>Chaparral and coastal scrubs (Cismontane scrub)</u>

Overall, approximately 1,000 acres of chaparral and coastal scrubs would be impacted under the No Action Alternative under the GCP. All of the impacts to chaparral and coastal scrubs would be in the Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas from solar, wind, and transmission development. Impacts to this community may have an adverse effect and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Desert conifer woodlands

Overall, approximately 1,000 acres of desert conifer woodlands would be impacted under the No Action Alternative under the GCP. Impacts to desert conifer woodlands would be from solar development in the Kingston and Funeral Mountains subarea, and from solar, wind, and transmission development in the West Mojave and Eastern Slopes and Pinto Lucerne Valley and Eastern Slopes subareas. Impacts to this community may have an adverse effect and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Desert outcrop and badlands

Overall, approximately 2,000 acres of desert outcrop and badlands would be impacted under the No Action Alternative under the GCP. Most of these impacts would be from renewable energy development in the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas. Impacts to this community may have an adverse effect and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Desert scrubs

Overall, approximately 36,000 acres of desert scrubs would be impacted under the No Action Alternative under the GCP. Most of these impacts would occur in the Cadiz Valley and Chocolate Mountains and West Mojave and Eastern Slopes subareas. Impacts to this community may have an adverse effect and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Dunes

Overall, approximately 700 acres of dunes would be impacted under the No Action Alternative under the GCP. Most of these impacts would occur in the Cadiz Valley and Chocolate Mountain, Kingston and Funeral Mountains, and Providence and Bullion Mountains subareas. Impacts to this community may have an adverse effect and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Grasslands

Overall, approximately 3,000 acres of grasslands would be impacted under the No Action Alternative under the GCP. Impacts would primarily occur in the West Mojave and Eastern Slopes subarea. Impacts to this community may have an adverse effect and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Riparian

Overall, approximately 3,000 acres of riparian communities would be impacted under the No Action Alternative under the GCP. Impacts would primarily occur in the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas. Impacts to this community may have an adverse effect and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Wetlands

Overall, approximately 4,000 acres of wetland communities would be impacted under the No Action Alternative under the GCP. Impacts would primarily occur in the Imperial Borrego Valley and West Mojave and Eastern Slopes subareas. Impacts to this community may have an adverse effect and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Table IV.7-31
Impact Analysis for Natural Communities Within the GCP Area – No Action Alternative

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
California forest and woodland						
Californian broadleaf forest and woodland	61,000	300	200	—	10	500
Californian montane conifer forest	44,000	200	100	—	0	300
Chaparral and coastal scrub community (Cismontane scrub)						
Californian mesic chaparral	3,000	10	10	—	10	30
Californian pre-montane chaparral	1,000	10	0	—	0	10
Californian xeric chaparral	19,000	100	60	—	60	200
Central and south coastal California seral scrub	1,000	10	0	—	0	10
Central and South Coastal Californian coastal sage scrub	42,000	300	100	0	160	545
Western Mojave and Western Sonoran Desert borderland chaparral	15,000	60	30	—	40	100

Table IV.7-31
Impact Analysis for Natural Communities Within the GCP Area – No Action Alternative

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Desert conifer woodlands						
Great Basin Pinyon - Juniper Woodland	104,000	600	300		200	1,000
Desert outcrop and badlands						
North American warm desert bedrock cliff and outcrop	220,000	1,000	40	30	600	2,000
Desert Scrub						
Arizonan upland Sonoran desert scrub	8,000	10	0	0	—	10
Intermontane deep or well-drained soil scrub	24,000	100	60	—	70	200
Intermontane seral shrubland	68,000	600	300	—	300	1,000
Inter-Mountain Dry Shrubland and Grassland	152,000	700	300	0	100	1,000
Intermountain Mountain Big Sagebrush Shrubland and steppe	48,000	300	100	—	10	400
Lower Bajada and Fan Mojavean - Sonoran desert scrub	2,262,000	18,000	4,000	300	7,000	28,000
Mojave and Great Basin upper bajada and toeslope	228,000	2,000	300	—	400	2,000
Shadscale - saltbush cool semi-desert scrub	157,000	1,000	300	10	400	2,000
Southern Great Basin semi-desert grassland	80	0	0	—	—	0
Dunes						
North American warm desert dunes and sand flats	34,000	500	10	0	200	700
Grassland						
California Annual and Perennial Grassland	196,000	2,000	800	0	700	3,000
California annual forb/grass vegetation	7,000	70	30		10	100

Table IV.7-31
Impact Analysis for Natural Communities Within the GCP Area – No Action Alternative

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Riparian						
Madrean Warm Semi-Desert Wash Woodland/Scrub	96,000	500	40	10	300	800
Mojavean semi-desert wash scrub	17,000	100	50	0	50	200
Riparian	600	10	0	—	0	10
Sonoran-Coloradan semi-desert wash woodland/scrub	34,000	600	10	10	200	800
Southwestern North American riparian evergreen and deciduous woodland	6,000	20	10	—	10	40
Southwestern North American riparian/ wash scrub	47,000	400	60	20	200	700
Wetland						
Arid West freshwater emergent marsh	4,000	0	0	—	0	0
Californian warm temperate marsh/seep	400	0	0	—	0	0
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	37,000	300	0	0	100	400
Open Water	114,000	1,000	100	90	700	2,000
Playa	52,000	0	0	0	0	10
Southwestern North American salt basin and high marsh	112,000	900	300	0	200	1,000
Wetland	8,000	60	20	—	30	100
Other Land Cover						
Agriculture	693,000	12,000	1,000	600	9,000	23,000
Developed and Disturbed Areas	399,000	300	60	20	40	400
Not Mapped	4,000	40	10	0	20	70

Table IV.7-31
Impact Analysis for Natural Communities Within the GCP Area – No Action Alternative

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Rural	110,000	1,000	300	70	7,000	3,000
Total	**5,430,000**	**46,000**	**9,000**	**1,000**	**21,000**	**77,000**

[1] Available lands includes the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Rare natural communities include natural community alliances with state rarity rankings S1, S2, or S3 (critically imperiled, imperiled, or vulnerable). Of the 46 rare natural community alliances mapped in the Plan Area on nonfederal land, 34 rare alliances have the potential to be impacted under the No Action Alternative on nonfederal land totaling approximately 2,000 acres of impacts. Impacts to rare natural communities would be adverse and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Impact BR-2: Siting, construction, decommissioning, and operational activities would result in adverse effects to jurisdictional waters and wetlands.

Impacts to riparian and wetland natural communities could result in adverse effects to jurisdictional waters and wetlands. Under the No Action Alternative, impacts to riparian and wetland natural communities is not prohibited by existing laws and regulations, but impacts to riparian and wetland natural communities identified as jurisdictional waters and wetlands would be regulated by existing federal and state laws and regulations. Approximately 2,600 acres of riparian communities and approximately 4,000 acres of wetland communities would be impacted under the No Action Alternative under the GCP. See the analysis for the loss of native vegetation provided under BR-1 for a discussion of these potential impacts. All or a portion of the estimated riparian and wetland impacts could result in adverse effects to jurisdictional waters and wetlands without avoidance, minimization and mitigation measures necessary to comply with existing federal and state laws and regulations.

Additionally playas, seeps/springs, major rivers, and ephemeral drainages are waters and wetland features that provide hydrological functions and may be determined to be

jurisdictional waters and wetlands. Adverse effects to these features would have the potential to impact jurisdictional waters and wetlands.

Playa

Approximately 1% (600 acres) of playa would be impacted by Covered Activities under the No Action Alternative under the GCP. The majority of impacts would be associated with solar (400 acres), with 20 acres of wind impacts, 100 acres of transmission impacts, and 1 acre of geothermal impacts. Ecoregion subareas of potential impacts to playas include the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, Kingston and Funeral Mountains, Mojave and Silurian Valley, Pinto Lucerne Valley and Eastern Slopes, Providence and Bullion Mountains, and West Mojave and Eastern Slopes subareas.

Seep/Spring

Seeps occur within the Plan Area and potential impacts to seep/spring have the potential to occur under the No Action Alternative under the GCP in the following ecoregion subareas: Imperial Borrego Valley, Kingston and Funeral Mountains, Mojave and Silurian Valley, Pinto Lucerne Valley and Eastern Slopes, and West Mojave and Eastern Slopes. Impacts to seeps and springs would be adverse absent implementation of avoidance measures.

Major Rivers

Major rivers occur within the Plan Area under the GCP and potential impacts to major rivers under the No Action Alternative have the potential to occur to the Amargosa, Colorado, and Mojave Rivers. Impacts to major rivers would be adverse absent implementation of avoidance measures.

Ephemeral Drainages

Ephemeral drainages occur throughout the Plan Area, and some of these features could be determined to state or federal jurisdictional waters. Impacts to ephemeral drainages would likely occur under the No Action Alternative. Impacts to ephemeral drainages would be adverse absent implementation of avoidance and minimization measures.

Impact BR-3: Siting, construction, decommissioning, and operational activities would result in degradation of vegetation.

Siting, construction, and operation of renewable energy would result in the degradation of vegetation through the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants. The degree to which these factors contribute to the degradation of vegetation corresponds to the distribution of renewable energy development within the GCP that would result in

dust, fire, and introduction of invasive plants or that would use dust suppressants and implement fire management. The propensity for vegetation to be at risk of degradation was determined by the overlap between natural community models and the likely distribution of renewable energy development across subareas in the GCP.

Siting, construction, and operations of renewable energy development would not be confined to DFAs and is assumed to follow past and current development patterns, under the No Action Alternative. Therefore, the impacts from renewable energy development, including vegetation degradation from dust, dust suppressants, fire, fire management, and invasive plants, could occur anywhere not prohibited from this development. Within the GCP these impacts would mostly occur in the Imperial Borrego Valley, West Mojave and Eastern Slopes, and Cadiz Valley and Chocolate Mountains, subareas, which would experience most of the terrestrial operational impacts in the GCP. As a result, these subareas would have the greatest potential to result in the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants.

Dust and Dust Suppressants

Natural communities, and in particular natural communities containing Mohave desert shrubs, are susceptible to vegetation degradation from physical damage, reduced photosynthesis, and reduced net primary productivity as a result of dust created by on-road and off-road vehicle use associated with the operation and maintenance of renewable energy facilities. Under the No Action Alternative impacts to these natural communities are expected to mostly occur in the West Mojave and Eastern Slope, the Imperial Borrego Valley, and the Cadiz Valley and Chocolate Mountains subareas. Plant Covered Species, that could also experience vegetation degradation from dust, would mainly be impacted by renewable energy development in the West Mojave and Eastern Slopes subarea, which contains the majority of expected impacts to plant Covered Species habitat within the GCP. Considering the distribution of renewable energy development that would cause dust as well as the sensitive natural communities and plant Covered Species the West Mojave and Eastern Slopes subarea is expected to experience the greatest magnitude of vegetation degradation resulting from dust.

Riparian and wetland natural communities would be susceptible to the adverse effects of dust suppressants including chemical and physical changes, altered hydrological function, and increased pollutant loads in surface water. Approximately 6,300 acres of the impacts that are estimated to occur to wetland and riparian natural communities in the GCP under No Action Alternative. The Imperial Borrego Valley subarea would experience the most impacts to riparian and wetland natural communities in the GCP from dust suppressant. As such, vegetation degradation may resulting from the use of dust suppressants by

renewable energy development would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Fire and Fire Management

The increased presence of flammable invasive annual plants and anthropogenic ignitions of fires can cause the conversion of natural communities and degrade vegetation. Due to their slower speed of recovery, desert scrub natural communities are more susceptible to natural community conversion from fires. Within the GCP approximately 36,000 acres of the impacts to desert scrubs are expected to occur under No Action Alternative. The majority of these impacts within the GCP are predicted to occur within the West Mojave and Eastern Slopes and to a lesser extent in the Cadiz Valley and Chocolate Mountains and the Imperial Borrego Valley subareas.

Fire management techniques can also result in the direct removal of vegetation and create advantageous circumstances for invasive plants to grow. Under the No Action Alternative, renewable energy development would impact approximately 800 acres of California forest and woodlands, 1,000 acres of impacts to chaparral natural communities, and 3,000 acres of impacts to grassland natural communities are anticipated within the GCP. The potential vegetation degradation to these susceptible natural communities from vegetation removal during fire management are anticipated to predominantly occur in the West Mojave and Eastern Slopes subarea. As such, implementation of specific avoidance, minimization, and compensation measures would be required to offset these impacts from fire and fire management.

Invasive Plants

The introduction of invasive plants through creation of disturbed areas or environments that favor invasive plant growth can result in vegetation degradation by increasing the fuel load and the frequency of fires in plant communities as well hindering the growth or establishment of other plant species. Overall, the natural communities and plant Covered Species in the GCP are generally at the risk of adverse effects from the introduction of invasive plants. The most vegetation degradation to natural communities caused by the introduction of invasive plants in the GCP is expected to occur in the West Mojave and Eastern Slopes and Imperial Borrego Valley subareas. Plant Covered Species in the GCP would also experience potential vegetation degradation as a result of renewable energy development with the majority of impacts anticipated to occur in the West Mojave and Eastern Slopes subarea. Therefore, the majority of impacts from the introduction of invasive plants in the GCP is predicted to occur in the West Mojave and Eastern Slopes subarea and would require the implementation of avoidance, minimization, and compensation measures to offset these impacts.

Impact BR-4: Siting, construction, decommissioning, and operational activities would result in loss of listed and sensitive plants; disturbance, injury, and mortality of listed and sensitive wildlife; and habitat for listed and sensitive plants and wildlife.

Most of the impacts to plant and wildlife species and their habitat under the No Action Alternative would occur in the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, and West Mojave and Eastern Slopes subareas. However, there would also be substantial impacts to plant and wildlife species and their habitat in the Kingston and Funeral Mountains, Providence and Bullion Mountains, and Mojave and Silurian Valley subareas.

Table IV.7-32 provides the GCP impact analysis for Covered Species habitat. Renewable energy development within the Cadiz Valley and Chocolate Mountains subarea would be entirely from solar energy and transmission development. Typical impacts from these Covered Activities on plant and wildlife species and their habitat is described in Section IV.7.2. The Cadiz Valley and Chocolate Mountains subarea provides suitable habitat for amphibians and reptiles, including Agassiz's desert tortoise and Mojave fringe-toed lizard that would be impacted. Impacts would occur to the following covered bird species in this subarea: Bendire's thrasher, burrowing owl, California black rail, Gila woodpecker, golden eagle, greater sandhill crane, least Bell's vireo, mountain plover, southwestern willow flycatcher, western yellow-billed cuckoo, and Yuma clapper rail. Suitable habitat for Covered mammals occurs in the Cadiz Valley and Chocolate Mountains subarea for bighorn sheep, California leaf-nosed bat, pallid bat, and Townsend's big-eared bat.

Renewable energy development within the Imperial Borrego Valley subarea would be primarily from solar energy and transmission development, but would also include impacts from wind and geothermal development. The Imperial Borrego Valley subarea provides suitable habitat for Agassiz's desert tortoise and flat-tailed horned lizard that would be impacted. Impacts would occur to suitable habitat for the following covered bird species in this subarea: Bendire's thrasher, burrowing owl, California black rail, Gila woodpecker, golden eagle, greater sandhill crane, least Bell's vireo, mountain plover, southwestern willow flycatcher, Swainson's hawk, tricolored blackbird, and Yuma clapper rail. Impacts to suitable habitat for desert pupfish, the only fish species with suitable habitat in this subarea, would be minimal (260 acres). Only impacts to mountain habitat would occur to bighorn sheep in this subarea. Impacts to suitable habitat for other covered mammals species would occur for California leaf-nosed bat, pallid bat, and Townsend's big-eared bat. Only minimal impacts (4 acres) from solar effects would occur to suitable habitat for only one covered plant species, little San Bernardino Mountains linanthus.

Renewable energy development in the West Mojave and Eastern Slopes subarea would be primarily from solar development, but would also include impacts from wind and transmission development. This subarea provides suitable habitat for amphibians and

reptiles that would be impacted, including Agassiz's desert tortoise, Mojave fringe-toed lizard, and Tehachapi slender salamander. There is suitable habitat for several bird Covered Species in the West Mojave and Eastern Slopes subarea that would be impacted, including Bendire's thrasher, burrowing owl, California condor, golden eagle, least Bell's vireo, mountain plover, southwestern willow flycatcher, Swainson's hawk, tricolored blackbird, western yellow-billed cuckoo, and Yuma clapper rail. No covered fish species would be impacted in this subarea. Suitable habitat for bighorn sheep, California leaf-nosed bat, Mohave ground squirrel, pallid bat, and Townsend's big-eared bat would be impacted in this subarea. Suitable habitat for the following plant species would be impacted in the West Mojave and Eastern Slopes subarea: alkali mariposa-lily, Bakersfield cactus, Barstow woolly sunflower, desert cymopterus, Mojave monkeyflower, Mojave tarplant, and Owens Valley checkerbloom.

The only Covered amphibian or reptile in the Kingston and Funeral Mountains subarea with suitable habitat that would be impacted is the Agassiz's desert tortoise and no Covered fish suitable habitat would be impacted in this subarea. There is suitable habitat for several bird Covered Species in the Kingston and Funeral Mountains subarea that would be impacted, including Bendire's thrasher, burrowing owl, golden eagle, Least Bell's vireo, southwestern willow flycatcher, and western yellow-billed cuckoo. Suitable habitat for bighorn sheep, California leaf-nosed bat, pallid bat, and Townsend's big-eared bat would be impacted in this subarea. In the Mojave and Silurian Valley and Providence and Bullion Mountains subareas suitable habitat for the same Covered Species that would be impacted Plan-wide are also impacted under the GCP (see Section IV.7.3.1.1).

Impacts to plant and wildlife species and their habitat would be adverse and would require implementation of avoidance, minimization, and compensation measures to offset these impacts consistent with existing applicable laws and regulations.

Table IV.7-32
Impact Analysis for Species Habitat Within the GCP Area – No Action Alternative

Species	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Amphibian/Reptile						
Agassiz's desert tortoise	2,256,000	15,000	4,000	20	5,000	24,000
Flat-tailed horned lizard	310,000	4,000	400	300	2,000	7,000
Mojave fringe-toed lizard	168,000	3,000	30	—	2,000	5,000
Tehachapi slender salamander	41,000	200	100	—	10	300

Table IV.7-32
Impact Analysis for Species Habitat Within the GCP Area – No Action Alternative

Species	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Bird						
Bendire's thrasher	405,00	2,000	300	90	800	3,000
Burrowing owl	3,251,000	29,000	7,000	900	16,000	53,000
California black rail	127,000	2,000	200	100	2,000	4,000
California condor	996,000	6,000	3,000	—	3,000	12,000
Gila woodpecker	56,000	800	80	60	400	1,000
Golden eagle - foraging	1,007,000	7,000	1,000	20	2,000	10,000
Golden eagle - nesting	676,000	4,000	1,000	0	600	6,000
Greater sandhill crane	601,000	11,000	700	600	8,000	20,000
Least Bell's vireo	105,000	500	200	10	100	800
Mountain plover	811,000	13,000	2,000	600	9,000	24,000
Southwestern willow flycatcher	258,000	2,000	400	100	2,000	4,000
Swainson's hawk	1,340,000	10,000	3,000	300	6,000	19,000
Tricolored Blackbird	257,000	2,000	1,000	10	1,000	5,000
Western yellow-billed cuckoo	111,000	600	70	—	200	900
Yuma clapper rail	31,000	300	20	20	200	500
Fish						
Desert pupfish	7,000	100	20	10	90	300
Mohave tui chub	100	0	0	—	—	0
Owens pupfish	13,000	—	—	—	—	—
Owens tui chub	13,000	—	—	—	—	—
Mammal						
Bighorn sheep – inter-mountain habitat	464,000	4,000	300	—	700	5,000
Bighorn sheep – mountain habitat	808,000	4,000	400	20	800	5,000
California leaf-nosed bat	979,000	10,000	200	200	5,000	16,000
Mohave ground squirrel	1,329,000	7,000	4,000	—	2,000	13,000
Pallid bat	3,783,000	27,000	6,000	300	10,000	43,000
Townsend's big-eared bat	3,519,000	26,000	5,000	400	10,000	41,000

Table IV.7-32
Impact Analysis for Species Habitat Within the GCP Area – No Action Alternative

Species	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Plant						
Alkali mariposa-lily	117,000	1,000	500	—	300	2,000
Bakersfield cactus	200,000	1,000	700	—	300	2,000
Barstow woolly sunflower	82,000	600	300	—	70	900
Desert cymopterus	137,000	800	400	—	50	1,000
Little San Bernardino Mountains linanthus	129,000	200	10	0	20	300
Mojave monkeyflower	41,000	200	90	—	30	300
Mojave Tarplant	129,000	600	300	—	90	1,000
Owens Valley checkerbloom	91,000	0	0	—	0	0
Parish's daisy	72,000	70	10	—	50	100
Triple-ribbed milk-vetch	3,000	0	—	—	—	0

[1] Available lands includes the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For Agassiz's desert tortoise, desert tortoise important areas were identified that include tortoise conservation areas (TCAs), desert tortoise linkages, and desert tortoise high priority habitat (see desert tortoise BGOs in Appendix C). Table IV.7-33 provides an impact analysis for these desert tortoise important areas in the GCP area, organized by desert tortoise Recovery Units: Colorado Desert, Eastern Mojave, and Western Mojave. Within the Colorado Desert Recovery Unit, 5,000 acres of TCAs, linkage habitat, and high priority habitat would be impacted under the No Action Alternative. Within the Eastern Mojave Recovery Unit, 2,000 acres of desert tortoise important areas would be impacted under the No Action Alternative. Within the Western Mojave Recovery Unit, 7,000 acres of TCAs and linkage habitat would be impacted under the No Action Alternative. Existing federal and state regulations would require avoidance, minimization, and compensation for impacts to this federal and state listed species that would likely reduce the impacts reported here; however, these impacts to desert tortoise important areas would be adverse and would require mitigation.

Table IV.7-33
Impact Analysis for Desert Tortoise Important Areas Within the GCP Area – No Action Alternative

Recovery Unit	Reserve	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Colorado Desert	High Priority Habitat	31,000	1,000	-	20	1,000
	Linkage	63,000	1,000	-	0	1,000
	TCA	269,000	1,000	-	2,000	3,000
Colorado Desert Total		*363,000*	*3,000*	-	*2,000*	*5,000*
Eastern Mojave	Linkage	56,000	1,000	-	-	1,000
	TCA	66,000	900	-	-	800
Eastern Mojave Total		*122,000*	*2,000*	-	-	*2,000*
Western Mojave	Linkage	407,000	3,000	600	700	5,000
	TCA	392,000	2,000	800	400	3,000
Western Mojave Total		*799,000*	*5,000*	*1,000*	*1,000*	*7,000*
Total		**1,284,000**	**10,000**	**1,000**	**3,000**	**14,000**

[1] Available lands includes the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. There are no impacts from geothermal development to desert tortoise recovery units under the No Action Alternative. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For golden eagle, a territory-based analysis was conducted (see methods and results in the Chapter IV.7 portion of Appendix R2). Using the golden eagle nest database, golden eagle territories were identified and individually buffered by 1 mile (representing breeding areas around known nests) and 4 miles (representing use areas around known nests). A total of 157 territories occur wholly or partially within the GCP area.

Under the No Action Alternative, 44 territories have nests in or within 1 mile of the area available for renewable energy and transmission development under the No Action Alternative, and the breeding areas of these territories could be impacted by renewable energy and transmission development depending on the siting of specific projects. Under the No Action Alternative, 95 territories have nests in or within 4 miles of the area available for renewable energy and transmission development under the No Action Alternative, and the use areas of these territories could be impacted by renewable energy and transmission development depending of the siting of specific projects. Existing laws and regulations would require avoidance, minimization, and compensation for any take of golden eagles.

For bighorn sheep, bighorn sheep mountain habitat and intermountain (linkage) habitat have been identified in the Plan Area. Under the No Action Alternative on nonfederal land, approximately 5,000 acres of mountain habitat and 5,000 acres of intermountain habitat would be impacted. Existing federal and state regulations would require avoidance, minimization, and compensation for impacts to this federal and state listed species.

For Mohave ground squirrel, Mohave ground squirrel important areas were identified that include key population centers, linkages, expansion areas, and climate change extension areas (see Mohave ground squirrel BGOs in Appendix C). Table IV.7-34 provides an impact analysis for these Mohave ground squirrel important areas in the GCP area. Under the No Action Alternative, 5,000 acres of Mohave ground squirrel important areas would be impacted. Existing federal and state regulations would require avoidance, minimization, and compensation for impacts to this state listed and BLM sensitive species that would likely reduce the impacts reported here; however, these impacts to Mohave ground squirrel would be adverse and would require mitigation.

Table IV.7-34
Impact Analysis for Mohave Ground Squirrel Important Areas Within the GCP Area – No Action Alternative

Mohave Ground Squirrel Important Area Type	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Key Population Center	193,000	900	500	80	1,000
Linkage	103,000	300	200	—	500
Expansion Area	131,000	50	20	—	70
Climate Change Extension	258,000	2,000	900	200	3,000
Total	**684,000**	**3,000**	**2,000**	**300**	**5,000**

[1] Available lands includes the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. There are no impacts from geothermal development on Mohave ground squirrel important areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Siting, construction, and operation of renewable energy could result in the potential disturbance, injury, and mortality of listed and sensitive wildlife from noise, predator avoidance behavior, as well as light and glare. The degree to which these factors contribute to the disturbance of sensitive wildlife corresponds to the distribution of

renewable energy development within the GCP that would result in noise, predator avoidance behavior, or light and glare.

Siting, construction, and operations of renewable energy development would not be confined to DFAs and is assumed to follow past and current development patterns, under the No Action Alternative. Therefore, the impacts from renewable energy development, including disturbance of sensitive wildlife from noise, predator avoidance behavior, as well as light and glare, could occur anywhere not prohibited from this development. Within the GCP these impacts would mostly occur in the Imperial Borrego Valley, West Mojave and Eastern Slopes, and Cadiz Valley and Chocolate Mountains, subareas, which would experience most of the renewable energy terrestrial operational impacts in the GCP. As a result, these subareas would have the greatest potential to disturbance of sensitive wildlife from noise, predator avoidance behavior, as well as light and glare.

Noise

Noise generated by the use of mechanical equipment and vehicles during operation and maintenance of renewable energy facilities can cause physical damage to wildlife as well as behavioral changes in habitat use, activity patterns, reproduction, and foraging. Nesting birds are expected to be particularly sensitive to noise effects and the largest amount of impacts to bird Covered Species habitat in the GCP would be located in the West Mojave and Eastern Slopes and Imperial Borrego Valley subareas. Smaller mammals, such as the Mohave ground squirrel, and reptiles, such the Mojave fringe-toed lizard and flat-tailed horned lizard, could experience increased predation from noise hindering their ability to detect predators. The combined impacts in the GCP to the habitat for these Covered Species would mostly occur in the West Mojave and Eastern Slopes subarea. As such, the disturbance of wildlife from noise would predominantly occur in the West Mojave and Eastern Slopes subarea. These adverse effects would require implementation of avoidance, minimization, and compensation measures to offset these impacts from noise.

Predator Avoidance Behavior

Predator avoidance behavior from renewable energy development can cause wildlife to experience behavioral changes. Although different wildlife species may have varying sensitivities to predator avoidance behavior and may experiences different magnitudes of responses to renewable energy development, these renewable energy developments are expected to generally result in predator avoidance and other behavioral changes in most wildlife species that are spread throughout the GCP. Therefore, the most disturbance of wildlife from predator avoidance behavior would occur in the Imperial Borrego Valley, West Mojave and Eastern Slopes, and Cadiz Valley and Chocolate Mountains, subareas where the majority of terrestrial operational impacts in the GCP would occur. The implementation of avoidance,

minimization, and compensation measures would be needed to offset the impacts from predator avoidance behavior resulting from renewable energy development.

Light and Glare

Exposure of wildlife to light and glare can alter wildlife behavior including foraging, migration, and breeding. Solar projects are expected to have greater effects on wildlife compared to other renewable energy technologies because they would produce increased levels of glare due to the large amount of reflective panel or heliostat surfaces. Potential adverse effects associated with light and glare from solar projects, including solar flux and bird collisions from the lake effect are analyzed in BR-9. Terrestrial operational impacts in the GCP resulting from development of all technology types of renewable energy are anticipated to mostly occur in the Imperial Borrego Valley, West Mojave and Eastern Slopes, and Cadiz Valley and Chocolate Mountains subareas. Similarly, the West Mojave and Eastern Slopes, Imperial Borrego Valley, and Cadiz Valley and Chocolate Mountains subareas are estimated to experience of the most terrestrial operational impacts from solar projects in the GCP. Therefore, these subareas would generally have the potential to cause the disturbance of sensitive wildlife from light and glare.

Bats and other diurnal predators may exploit night lighting that increases prey detectability, but would also be attracted to areas of greater development that increase potential hazards such as collision. Impacts to habitat for bats would as a result of renewable energy development in the GCP would mainly be located in the West Mojave and Eastern Slopes and the Cadiz Valley and Chocolate Mountains subareas. Migratory birds that fly during the night may be attracted to aviation safety lighting. For bird Covered Species the Imperial Borrego Valley and West Mojave and Eastern Slopes are the subareas contain the most impacts to bird Covered Species habitat in the GCP. As such, wildlife disturbance from light and glare is anticipated to occur primarily in the West Mojave and Eastern Slopes subarea and to a lesser extent in the Imperial Borrego Valley as well as the Cadiz Valley and Chocolate Mountains subareas. The implementation of avoidance, minimization, and compensation measures would be needed to offset these impacts.

Non-Covered Species

Potential impacts to Non-Covered Species on BLM Land were analyzed based on impacts to natural communities as described in Section IV.7.3.1.1. Table IV.7-35 provides an estimation of the impacts to natural communities associated with Non-Covered Species. While estimation of impacts to natural communities likely overestimates the potential impacts to Non-Covered Species habitats, it provides a general range of level of impact.

For some species, impacts would be minimized through avoidance of the specific natural communities required for those species, e.g., dune-, spring-, or cave-restricted

invertebrates, or riparian-obligate bird or amphibian species. The total impact to potential habitat across all technology types is less than 1%, with the exception the desert scrub/chaparral communities at approximately 1.5%, grassland communities at approximately 3%, and within the agriculture/rural land cover areas at approximately 7%.

As additional analysis, Table IV.7-7 provides a cross-reference of natural communities shared between primary Covered and Non-Covered Species. The type of environmental protections afforded to certain sensitive natural communities, e.g., riparian or wetlands, that would protect Covered Species would be expected to also minimize and avoid impacts to the Non-Covered Species that may co-occur. For example, the non-covered yellow-breasted chat often occurs within the same riparian habitat as the covered southwestern willow flycatcher. Although the modeled habitat for the Covered Species does not always directly overlap the range of Non-Covered Species requiring similar habitat, this method provides a general additional guide for determining impacts and accounting for conservation measures.

Under the No Action Alternative, impacts to designated critical habitat for Non-Covered Species on GCP lands would have the potential to occur. Specifically impacts would potentially occur to approximately 40 acres of arroyo toad critical habitat, approximately 10 acres of Lane Mountain milk-vetch critical habitat, and 70 acres of Peninsular bighorn sheep critical habitat. In addition, the results of impacts on Non-Covered Species from the creation of noise, predator avoidance behavior, and light and glare would be similar to those described for the Covered Species under the No Action Alternative. Therefore, implementation of avoidance, minimization, and compensation measures would be needed to offset these impacts.

Table IV.7-35
GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – No Action Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[3]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
California forest and woodland/ Desert conifer woodlands	Coast horned lizard, grey vireo, loggerhead shrike, yellow warbler, American badger, bighorn sheep, fringed myotis, hoary bat, long-eared myotis, pocketed free-tailed bat, spotted bat, Tehachapi pocket mouse, western mastiff bat, western small-footed myotis, Amargosa beardtongue, Charlotte's phacelia, creamy blazing star, Cushenbury buckwheat, Cushenbury milk-vetch, Cushenbury oxytheca, Kern buckwheat, Piute Mountains jewel-flower, purple-nerve cymopterus, San Bernardino Mountains dudleya, short-joint beavertail cactus, Spanish needle onion, Tracy's eriastrum, Cushenbury buckwheat	209,000	1,100	1,000	0	200	1,200	1.1%
Desert Scrub/ Chaparral Communities	Arroyo toad, banded gila monster, Coast horned lizard, Colorado Desert fringe-toed lizard, Couch's spadefoot, rosy boa, bald eagle, bank swallow, Crissal thrasher, Ferruginous hawk, gilded flicker, grey vireo, Le Conte's thrasher, loggerhead shrike, long-eared owl,	3,020,000	23,200	6,000	300	8,600	38,100	1.3%

Table IV.7-35
GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – No Action Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[3]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	Lucy's warbler, northern harrier, yellow warbler, American badger, Arizona myotis, big free-tailed bat, bighorn sheep, cave myotis, fringed myotis, hoary bat, long-eared myotis, Palm Springs pocket mouse, pocketed free-tailed bat, spotted bat, Tehachapi pocket mouse, western mastiff bat, western small-footed myotis, western yellow bat, yellow-eared pocket mouse, Yuma myotis, Algodones Dunes sunflower, Ash Meadows gum plant, Amargosa beardtongue, bare- stem larkspur, Charlotte's phacelia, Cima milk-vetch, Coachella Valley milk-vetch, creamy blazing star, Cushenbury buckwheat, Cushenbury milk-vetch, Cushenbury oxytheca, desert pincushion, Emory's crucifixion-thorn, flat-seeded spurge, forked buckwheat, Harwood's eriastrum, Harwood's milkvetch, Inyo County star-tulip, Kelso Creek monkeyflower, Kern buckwheat, Las Animas colubrina, Lane Mountain Milk-Vetch,							

Table IV.7-35
GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – No Action Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[3]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	Mojave Desert plum, Mojave milkweed, Munz's Cholla, nine-awned pappus grass, Orcutt's woody aster, Orocopia sage, Parish's club cholla, Pierson's milk-vetch, pink fairy-duster, Piute Mountains jewel-flower, purple-nerve cymopterus, Red Rock poppy, Red Rock tarplant, Robinson's monardella, Rusby's desert-mallow, sand food, Sodaville milk-vetch, short-joint beavertail cactus, Spanish needle onion, Thorne's buckwheat, Tracy's eriastrum, Utah beardtongue, white bear poppy, White-margined beardstongue, Wiggin's croton, Flat-seeded spurge, Parish's phacelia, Parish's alkali grass							
Dunes[3]/ Desert Outcrop and Badlands	Banded gila monster, barefoot gecko, Coast horned lizard, Colorado Desert fringe-toed lizard, Couch's spadefoot, rosy boa, bald eagle, bank swallow, Le Conte's thrasher, loggerhead shrike, long-eared owl, northern harrier, Amargosa vole, big free-tailed bat,	254,000	1,500	50	30	1,000	2,580	1%

Table IV.7-35
GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – No Action Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[3]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	bighorn sheep, cave myotis, bat, spotted bat, western mastiff bat, Yuma myotis, Algodones Dunes sunflower, Ash Meadows gum plant, Amargosa beardtongue, Amargosa niterwort, Charlotte's phacelia, Cima milk-vetch, Coachella Valley milk-vetch, creamy blazing star, desert pincushion, Emory's crucifixion-thorn, flat-seeded spurge, forked buckwheat, Harwood's eriastrum, Harwood's milkvetch, Inyo County star-tulip, Las Animas colubrina, Mojave Desert plum, Mojave milkweed, nine-awned pappus grass, Orcutt's woody aster, Orocopia sage, Palmer's jackass clover, Parish's club cholla, Pierson's milk-vetch, pink fairy-duster, purple-nerve cymopterus, Red Rock poppy, Red Rock tarplant, Robinson's monardella, Rusby's desert-mallow, sand food, Spanish needle onion, Thorne's buckwheat, Utah beardtongue, white bear poppy, Wiggin's croton, Palmer's jackass clover, white-							

Table IV.7-35
GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – No Action Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[3]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	margined beardtongue, flat-seeded spurge							
Grassland	Coast horned lizard, American peregrine falcon, bank swallow, Ferruginous hawk, long-eared owl, northern harrier, white-tailed kite, Amargosa vole, American badger, spotted bat, Cushenbury milk-vetch, Cushenbury oxytheca, short-joint beavertail cactus	203,000	2,000	1,000	0	1,000	3,000	1.5%
Riparian/ Wetlands	Arroyo toad, California red-legged frog, Coast horned lizard, Couch's spadefoot, Western pond turtle, American peregrine falcon, Arizona Bell's vireo, bald eagle, bank swallow, Crissal thrasher, gilded flicker, elf owl, Inyo California towhee, loggerhead shrike, long-eared owl, Lucy's warbler, northern harrier, redhead, vermillion flycatcher, white-tailed kite, yellow-breasted chat, yellow-headed blackbird, yellow warbler, Amargosa vole, Mojave River vole, Arizona myotis, cave myotis, fringed myotis, hoary bat, long-eared myotispocketed	413,000	3,000	500	100	1,100	4,700	1.1%

Table IV.7-35
GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – No Action Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[3]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	free-tailed bat, spotted bat, western mastiff bat, western yellow bat, Yuma myotis, Ash Meadows gum plant, Inyo County star-tulip, Parish's alkali grass, Parish's phacelia, Amargosa pupfish, Amargosa speckled dace, Amargosa spring snails							
Agriculture/ Rural Land Cover	American peregrine falcon, Bank swallow, loggerhead shrike, long-eared owl, northern harrier, redhead, yellow-headed blackbird, yellow warbler, Arizona myotis, hoary bat, Tehachapi pocket mouse, western mastiff bat, western yellow bat	803,000	13,000	1,300	1,000	16,000	31,300	3.9%

1 Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
2 Solar impacts include ground-mounted distributed generation.
3 This amount assumes the loss of conservation value for all land fragmented by the well fields.

Notes: The natural community classification system is described in Chapter III.7 and follows CDFG 2012. Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Impact BR-5: Siting, construction, decommissioning, and operational activities could result in loss of nesting birds (violation of the federal Migratory Bird Treaty Act and California Fish and Game Code Sections 3503, 3503.5, 3511, and 3513).

Siting, construction, decommissioning, and operations of renewable energy and transmission projects would result in the removal of vegetation and other nesting habitat and cause increased human presence and noise that has the potential to cause the loss of nesting birds, which would be a violation of the federal Migratory Bird Treaty Act and the California Fish and Game Code. The potential loss of nesting birds resulting from these activities would be adverse without application of avoidance and minimization measures. Under existing laws and regulations, renewable energy and transmission projects would be required to implement seasonal restrictions and other avoidance measures including pre-construction nesting bird surveys and impact setbacks determined necessary to avoid and minimize the loss of nesting birds.

Impact BR-6: Siting, construction, decommissioning, and operational activities would adversely affect habitat linkages and wildlife movement corridors, the movement of fish, and native wildlife nursery sites.

Species-specific habitat linkages and wildlife movement areas are a component of analysis conducted under Impact BR-4 above. Suitable habitat for each species includes areas of habitat linkages and wildlife movement. Analysis under BR-4 specifically incorporates habitat linkage information for desert tortoise, Mohave ground squirrel, and desert bighorn sheep. In addition to the species-specific analysis of impacts to suitable habitat supporting habitat linkages and wildlife movement for species, landscape level information on habitat linkages (i.e., Desert Linkage Network) and migratory bird movement are analyzed below.

Desert Linkage Network

Table IV.7-36 shows impacts to the Desert Linkage Network by ecoregion subarea anticipated under the No Action Alternative for the GCP. Overall 1.4% of the Desert Linkage Network would be impacted under the No Action Alternative. The percentage of the Desert Linkage Network impacted in each subarea would range from 0% for the Panamint Death Valley, Piute Valley and Sacramento Mountains, and Owens River Valley subareas to 3.9% of the Cadiz Valley and Chocolate Mountains subarea. Overall, solar would account for 58% of the impacts to the Desert Linkage Network, wind would account for 12%, and transmission would account for 30%. Geothermal would not account for any impacts under the No Action Alternative. Wind project areas would account for proportionally greater impacts in the West Mojave and Eastern Slopes subarea (29% of the total impacts in the subarea) and Pinto Lucerne Valley and Eastern Slopes subarea (13% of the total impacts in the subarea). The magnitude of impacts to the function of habitat linkages depends on site-specific factor. Impacts to Desert Linkage Network habitat linkages would be adverse and

would require mitigation to avoid impacting habitat linkage function in the subareas where impacts are anticipated under the No Action Alternative.

Table IV.7-36
GCP Impact Analysis for the Desert Linkage Network – No Action Alternative

Ecoregion Subarea	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Cadiz Valley and Chocolate Mountains	148,000	3,000	-	2,000	6,000
Imperial Borrego Valley	10,000	10	-	100	100
Kingston and Funeral Mountains	12,000	300	-	-	300
Mojave and Silurian Valley	101,000	0	-	600	600
Owens River Valley	4,000	-	-	-	-
Panamint Death Valley	15,000	-	-	-	-
Pinto Lucerne Valley and Eastern Slopes	122,000	60	40	200	300
Piute Valley and Sacramento Mountains	24,000	-	-	-	-
Providence and Bullion Mountains	49,000	800	-	40	800
West Mojave and Eastern Slopes	468,000	3,000	1,000	700	5,000
Total	**952,000**	**7,000**	**2,000**	**4,000**	**13,000**

[1] Available lands includes the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

Notes: Total reported acres include solar and ground-mounted distributed generation (GMDG), short-term and long-term wind impacts, and transmission impacts. There are no impacts from geothermal development to desert linkage network under the No Action Alternative. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Migratory Birds

Migration patterns across the Plan area are discussed, along with the types impacts associated with each technology, in the typical impacts section. The ultimate locations of individual projects are not known. Therefore, in order to conceptualize the anticipated build out of generation in the No Action alternative, the following analysis focuses on the anticipated distribution of different technology types and their relation to known migratory corridors.

In the No Action Alternative, wind is a substantial proportion of the overall generation mix. Development would mostly be located in the West Mojave, bordering the Tehachapi and San Bernardino Mountains, impacts are most likely to occur in areas between the Tehachapi and San Bernardino passes, and the dry lakes and wetland refuges on and to the north of Edwards AFB including Searles Lake, Koehn Lake China Lake and Harper Lake. No wind development is anticipated in areas adjacent to the Colorado River, and wind development in the Imperial Valley would be relatively limited and may affect wetlands and agricultural foraging lands to the south of the Salton Sea, but little else.

Solar development in the West Mojave and Eastern Slopes subarea impacts would occur throughout the subarea, including natural communities to the north of Edwards AFB and to east of Tehachapi Mountains as well as along both HWY 14 and HWY 395 corridors. Development would occur in agricultural land surrounding Lancaster, including Antelope Valley. Development would result in a two-fold increase over baseline, and occur between key migratory features like the Tehachapi pass, and the dry lakes in the northern Mojave including Searles Lake, Koehn Lake and Harper Lake. In the Cadiz and Chocolate Mountains subarea, the No Action alternative would lead to a considerable in solar facilities increase over baseline, which would result in a string of solar generation facilities along the I-10 corridor to the west side of the Colorado River, in McCoy Valley, and in the disturbed and agricultural lands around Blythe. This would effectively appear as a string of lakes on a known migratory linkage for birds between the Colorado River corridor, Coachella Valley and further west towards the coast. Development, around the Salton Sea, would as now, be on the southern, western and eastern shores. Impacts from solar development in Imperial Borrego Valley would result in a 2.4-fold increase over baseline, and are likely to result in the direct loss of foraging habitat in the agricultural lands south of the Salton Sea. Like the I-10 corridor impacts, development would result in a landscape dotted with highly reflective facilities that mimic open water, that may lead to increased collision.

Impacts from development to migratory resources from projects may be adverse and would be implemented on a project by project basis. Adverse impacts would require each project to implement surveying and siting as well as minimization measures to ensure reduction and avoidance of impacts. Further compensation measures may be necessary to offset adverse effects and would be implemented on a project by project basis.

Application of avoidance and minimization measures would reduce the overall impacts to migratory bird populations. However, Covered Activities may adversely impact migratory birds. While it may be feasible to survey, site and monitor projects to minimize loss of habitat within the Plan Area, residual operational impacts may not be adequately mitigated through compensation strategies. For example, where the full range of the species life cycle i.e., overwintering, migration and breeding, is not within the jurisdiction of the permitting agencies, application of adequate compensation strategies may be infeasible. Additional steps

would be necessary to ensure projects do not adversely impact migratory birds within the Plan Area. After application of the mitigation measures, operational impacts on migratory birds from the No Action Alternative would be adverse and would require mitigation.

Impact BR-7: Siting, construction, decommissioning, and operational activities would result in habitat fragmentation and isolation of populations of listed and sensitive plants and wildlife.

As discussed in the Plan-wide analysis, the construction and operation of renewable energy and transmission projects can have the potential to fragment intact and interconnected landscapes resulting in isolated patches of habitat, isolated species populations, reduced gene flow, and remaining habitat that is more exposed to the edge effects of adjacent developments. Under the No Action Alternative, renewable energy development would not be confined to DFAs and fragmentation and population isolation effects could occur anywhere renewable energy development is not prohibited and is assumed to be distributed in a pattern that follows past and current patterns. Also as described in the Plan-wide analysis, approximately 40% of the area available to renewable energy development under the No Action Alternative is characterized by moderately high terrestrial intactness to high terrestrial intactness. Siting and construction of renewable energy and transmission in these intact areas would result in adverse habitat fragmentation and population isolation effects. Other measures of fragmentation and population isolation effects include the amount of impacts on environmental gradients such as elevation, landforms, slope, and aspect. The impacts to these environmental gradients would follow the same overall pattern as Plan-wide impacts. These habitat fragmentation and population isolation effects would be adverse and would require mitigation to avoid and minimize impacts.

Impact BR-8: Construction of generation facilities or transmission lines would result in increased predation of listed and sensitive wildlife species.

As discussed in the Plan-wide analysis, Covered Activities in undisturbed desert habitat are likely to supplement predators, and increase predation rates on Covered Species. The GCP No Action Alternative would result 51,000 acres of permanent conversion of natural desert communities and with 23,000 acres of impacts (30% of the total ground disturbance) within areas characterized by disturbed land cover types.

Development in the West Mojave and Eastern Slopes subareas may supplement predators in undisturbed habitats including parts of the Tehachapi Mountains and DFAs to the north of Edwards AFB. However, much of the development would be expected in disturbed and agricultural land around Lancaster and in the Antelope Valley. In these areas, susceptible species would include nestlings and eggs of Covered Species like tricolored blackbird and golden eagle, mountain plover, Bendire's thrasher, Swainson's hawk, as well as small

reptiles like the Tehachapi slender salamander, and mammals like the Mohave ground squirrel. Covered Activities associated with solar and wind generation in the Mojave and Silurian Valley subarea may be broadly distributed throughout the subarea, to the east of Barstow. Species impacted would include golden eagle, and other nesting birds as well as small mammals and reptiles like desert tortoise. The development in the Cadiz and Chocolate Mountains subarea would be expected in the agricultural and disturbed lands around Blythe. Impacts are likely to increase predation on susceptible species including desert tortoise, Mojave fringe-toed lizard, and nesting bird species. Impacts from Covered Activities are anticipated in Imperial Borrego Valley. Increased predation would affect nesting birds, flat-tailed horned lizard, desert tortoise, and nesting birds.

Typical management practices for the No Action would include the development of a Common Raven Control Plan that would reduce project activities that increase predator subsidization. Including, removal of trash and organic waste; minimize introduction of new water sources including pooling of water from dust control; removal of carcasses from bird and bat collisions; and reduction in new nesting and perching sites where feasible.

The level of impact on Non-Covered Species would be similar to that discussed for the Covered Species.

Impact BR-9: Operational activities would result in avian and bat injury and mortality from collisions, thermal flux or electrocution at generation and transmission facilities.

The impacts of operation activities on avian and bat injury and mortality are analyzed below for wind turbines, solar, and transmission.

Wind Turbine

This section summarizes wind turbine operational impacts to bird and bat species within the private lands DFAs. The range of collision rates calculated in Table IV.7-37 is indicative of the overall annual collision rates for all bird and bat species, not just Covered Species. The range of collision rates is estimated for the final full build-out of wind over the life of the Plan, and is based on the range of collision rates in existing published and gray literature. While it is possible to provide a range of possible collision rates, it is not feasible to estimate the collision rate for each Covered Species, but only infer the propensity for a species to be at risk of collision from its expected distribution and life history of the birds in the Plan Area.

Overall, the No Action Alternative would result in a median 10,000 collisions per year for birds and 48,000 collisions for bats in DFAs on nonfederal lands. The expected distribution of wind generation indicates that 82% of all collisions would occur in the West Mojave and Eastern Slopes subarea, 16% in the Imperial Borrego Valley subarea.

In the No Action Alternative, development in the West Mojave and Eastern Slopes would affect Bendire's thrasher, burrowing owl, California condor, golden eagle, mountain plover, Swainson's hawk, and tricolored blackbird. Whereas, the small amount of development in the Pinto and Lucerne Valley subarea would mainly affect golden eagle territories and important Bendire's thrasher habitat. In Imperial Borrego Valley subarea development of wind facilities would disproportionately affect overwintering migratory birds such as sandhill crane and, mountain plover, and less likely to affect wetland species like, Yuma clapper rail, and California black rail.

Wind projects would result in adverse impacts to Covered bird and bat Species. Impacts from wind projects would be analyzed on a project by project basis. Wind projects would develop bird and bat management plans. Each plan would require the implementation of avoidance, minimization, and compensation measures to offset collision impacts.

Table IV.7-37
GCP Impact Analysis for the Estimated Range of Bird and Bat Collisions per Year by Subarea – No Action Alternative

Ecoregion Subarea	# Turbines	Birds (Collisions/Yr)[1]			Bats (Collisions/Yr)[1]		
		Low	*Median*	*High*	*Low*	*Median*	*High*
Cadiz Valley and Chocolate Mountains	0	-	-	-	-	-	-
Imperial Borrego Valley	339	500	2,000	7,000	700	8,000	47,000
Kingston and Funeral Mountains	0	-	-	-	-	-	-
Mojave and Silurian Valley	0	-	-	-	-	-	-
Owens River Valley	0	-	-	-	-	-	-
Panamint Death Valley	0	-	-	-	-	-	-
Pinto Lucerne Valley and Eastern Slopes	27	-	100	500	100	600	4,000
Piute Valley and Sacramento Mountains	0	-	-	-	-	-	-
Providence and Bullion Mountains	0	-	-	-	-	-	-
West Mojave and Eastern Slopes	1,702	3,000	9,000	33,000	3,000	39,000	238,000
Grand Total	**2,069**	**3,000**	**10,000**	**40,000**	**4,000**	**48,000**	**290,000**

[1] Method for estimation of annual bird and bat collision rates described in Section IV.7.1.1.2 and discussed in more detail in Section IV.7.2.1.3

Note: The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Solar

Under the No Action Alternative, impacts to avian and bat species from solar development assume full build out of the anticipated solar capacity. Nonfederal lands would see a 2.4-fold increase in collision risks relative to baseline. The distribution of impacts under the GCP would be similar to that which is found in the Plan-wide analysis. 23% of the impacts risks would occur in the Cadiz and Chocolate Mountains, with, 32% in Imperial Borrego Valley, 31% in West Mojave and Eastern Slopes, 6% in the Providence and Bullion Mountains and 7% in the Kingston and Funeral Mountains.

Development in the Cadiz and Chocolate Mountains subarea under the GCP would occur in the agricultural lands around Blythe. Species habitat impacted by Covered Activities include Bendire's thrasher, burrowing owl, Gila woodpecker, golden eagle, greater sandhill crane, mountain plover, pallid bat, California leaf-nosed bat, and Townsend's big-eared bat. Anticipated impacts in the Imperial Borrego Valley subarea under the GCP would occur in agricultural and natural habitats south and west of the Salton Sea. Birds at risk from solar impacts include Bendire's thrasher, burrowing owl, California black rail, Gila woodpecker, golden eagle, greater sandhill crane, mountain plover, southwestern willow flycatcher, Swainson's hawk, Yuma clapper rail, pallid bat, California leaf-nosed bat, and Townsend's big-eared bat. Development in the West Mojave and Eastern Slopes subareas would occur in the Tehachapi Mountains, areas to the north of Edwards AFB, and agricultural land around Lancaster and in the Antelope Valley. In these areas, susceptible species would include pallid bat, California leaf-nosed bat, Townsend's big-eared bat, tricolored blackbird, golden eagle, mountain plover, Bendire's thrasher, burrowing owls and to a lesser extent Swainson's hawk.

Solar projects would result in adverse impacts to covered bird and bat species. Impacts from wind projects would be analyzed on a project by project basis. Wind projects would develop bird and bat management plans. Each plan would require the implementation of avoidance, minimization, and compensation measures to offset collision impacts.

Transmission

The transmission collision and electrocution impacts would occur from generation tie lines (collector lines), new substations, and major transmission lines (delivery lines) that deliver power to major load centers. The distribution of impacts from collector lines would mostly occur have a similar distribution to the generation facilities. Most of the affected areas on nonfederal lands would be in Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, West Mojave and Eastern Slopes, and the Mojave and Silurian Valley subareas, with 6,000 acres, 9,000 acres, 4,000 acres, 1,000 acres of terrestrial impacts anticipated respectively. The remaining 1,000 acres of impacts would be spread throughout the remaining subareas.

Both large transmission lines and the network of smaller gen-tie lines would present collision and electrocution hazard to covered bird species. In particular, lines running perpendicular to migratory corridors, and/or close to bird refuges would represent a greater hazard. Such lines would include those anticipated to run parallel to the Tehachapi Mountains and those that would cross the Tehachapi mountain passes. In addition, anticipated delivery lines in Chuckwalla Valley would run parallel to I-10 corridor in the existing transmission corridors. In the Imperial Borrego Valley subarea, lines would run along the along the eastern side of Salton Sea in existing transmission corridors that run parallel to the foothills of the Chocolate Mountains; and would also run from east to west between the Imperial Valley and the San Diego area. All these lines would represent additional risk to migrating and overwintering covered avian species, due to their location, Collision risks in these areas increase during storm events when flocks of migrating birds come down to wait out the storms before continuing their migration.

Large scale development of transmission, as anticipated within the plan area, would result in adverse impacts to Covered Species. In the No Action Alternative, projects would be analyzed on a project by project basis. Development of lines would follow recommendations of APLIC, where feasible. Each project would require an avian protection plan that would require the implementation of avoidance, minimization, and compensation measures to offset likely collision impacts.

The level of impact on Non-Covered Species would be similar to the Covered Species for each of the renewable energy types discussed above. Under the No Action Alternative, projects would be analyzed on a case-by-case basis and preparation and implementation of plans that detail avoidance, minimization, and compensation measures, are expected to address and offset collision impacts to Non-covered bird and bat species.

Operational Impacts Take Estimates for Covered Avian and Bat Species

The following section summaries the initial estimates for take of Covered Species by operational activities that would require compensatory mitigation. Take estimates integrate all sources of mortality for each technology discussed above.

Table IV.7-38
GCP Estimated Total Take for Covered Avian and Bat Species – No Action Alternative

Covered Bird and Bat Species	Solar Impact	Wind Impact	Geothermal Impact	Total Impact
Bendire's thrasher	10	30	0	40
Burrowing owl	110	100	0	210
California condor	0	0	0	0
California black rail	30	10	0	40

Table IV.7-38
GCP Estimated Total Take for Covered Avian and Bat Species – No Action Alternative

Covered Bird and Bat Species	Solar Impact	Wind Impact	Geothermal Impact	Total Impact
Gila woodpecker	30	10	0	40
Golden eagle	n/a	n/a	n/a	n/a
Least Bell's vireo	30	0	0	30
Mountain plover	50	60	0	110
Greater sandhill crane	10	0	0	10
southwestern willow flycatcher	50	10	0	60
Swainson's hawk	10	30	0	40
Tricolored blackbird	30	100	0	130
Western yellow billed cuckoo	30	10	0	40
Yuma clapper rail	30	10	0	40
Grand Total Avian Species	**450**	**370**	**10**	**830**
California leaf-nosed bat	10	0	0	10
Pallid bat	10	150	0	160
Townsend's big-eared bat	30	30	0	60
Grand Total Bat Species	**50**	**190**	**0**	**240**

[1] It was assumed that take for California condor would not be permitted under No Action Alterative as it is a fully protected species.
[2] Take of Golden Eagle would be permitted based on current Eagle Act permit regulations.

IV.7.3.1.5 Impacts of the Reserve Design under the General Conservation Plan

The No Action Alternative has no reserve design, but without approval of an action alternative, there would be continued protection of existing protected areas (e.g., Wilderness areas, National and State Parks, etc.). Under the No Action Alternative, project-specific mitigation required for renewable energy and transmission projects developed under the No Action that results in habitat conservation cannot be quantified and was not included in this analysis. The following provides an analysis of the conservation provided by existing protected areas on nonfederal lands in the DRECP area, organized by landscape, natural communities, and species.

Landscape

Habitat Linkages

Table IV.7-39 shows the Plan-wide conservation of the Desert Linkage Network under the No Action Alternative for the GCP. Overall, 28% (263,000 acres) of the Desert Linkage Network habitat linkage areas occur in areas of existing conservation or in existing BLM conservation designations. Conservation of habitat linkage areas in the subareas would be

variable, ranging from no conservation in the Owens River Valley to 44,000 acres (43%) in the Mojave and Silurian Valley subarea. Overall, existing BLM conservation designations account for 79% of the total conservation and Existing Protected Areas account for 21%.

Table IV.7-39
Conservation Analysis for the Desert Linkage Network within the GCP Area – No Action Alternative

Subarea	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Nonfederal Inholdings in Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
Cadiz Valley and Chocolate Mountains	148,000	2,000	49,000	50,000
Imperial Borrego Valley	10,000	-	100	100
Kingston and Funeral Mountains	12,000	30	2,000	2,000
Mojave and Silurian Valley	101,000	5,000	38,000	44,000
Owens River Valley	4,000	-	-	-
Panamint Death Valley	15,000	6,000	0	6,000
Pinto Lucerne Valley and Eastern Slopes	122,000	12,000	2,000	15,000
Piute Valley and Sacramento Mountains	24,000	-	7,000	7,000
Providence and Bullion Mountains	49,000	4,000	9,000	13,000
West Mojave and Eastern Slopes	468,000	26,000	100,000	126,000
Grand Total	**952,000**	**56,000**	**208,000**	**263,000**

1 Available lands includes the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas on nonfederal lands

2 Existing Protected Areas include Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on nonfederal land

3 Includes nonfederal inholdings within existing BLM Land Use Plan conservation designations (existing Areas of Critical Environmental Concern (ACECs)). There are no mechanisms to assure the conservation of these nonfederal inholdings within the existing BLM Land Use Plan conservation designations under the No Action Alternative; however, these inholding lands could be used for mitigation for planned or future renewable energy and transmission development under the No Action Alternative.

Notes: Overlaps of Existing BLM conservation designations with Existing Protected Areas are reported in the Existing Protected Areas acreages. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Hydrological Resources

A conservation analysis for hydrological resources is provided below, including playa, seep/spring, and the four major rivers in the Plan Area (i.e., Amargosa, Colorado, Mojave and Owens) under the No Action Alternative within the GCP. Conservation of riparian areas

and wetlands, which co-occur with many of these hydrological resources is provided below under Natural Communities.

Playa

Playa totals 75,000acres in the Plan Area under the No Action Alternative within the GCP. Overall, 7% (5,000 acres) would be conserved under the No Action Alternative within the GCP. Existing Conservation would account for 43% of the conservation, while existing ACECs would account for 57%.

Seep/Spring

There are 147 seep/spring locations in the Plan Area under the No Action Alternative within the GCP. Overall, 26% (38 locations) of the seep/spring locations would be conserved under the No Action Alternative within the GCP. The conservation of seep/spring under the No Action Alternative would be relatively low in all subareas. These include Imperial Borrego Valley (48%, 8 locations), Kingston and Funeral Mountains (19%, 3 locations), Mojave and Silurian Valley (59%, 5 locations), Pinto Lucerne Valley and Eastern Slopes (18%, 5 locations), Providence and Bullion Mountains (24%, 2 locations), and West Mojave and Eastern Slopes (30%, 16 locations). Overall, Existing Conservation would account for 43% of the conservation of seep/spring, and existing ACECs would account for 58%.

Major Rivers

Overall, 7% of the major rivers would be conserved under the No Action Alternative under the GCP, including 22% of the Amargosa River, 7% of the Colorado River, 10% of the Mojave River, and 0% of the Owens River. Existing Conservation would account for 77% of the conservation of the major rivers, while existing ACECs would account for 23%.

Dune and Sand Resources

Overall, 9% (20,000 acres) of dunes and sand resources would be conserved under the No Action Alternative within the GCP. The conservation of dunes and sand resources under the No Action Alternative would be relatively low in all subareas. These include Cadiz Valley and Chocolate Mountains at 5% (4,000 acres), Imperial Borrego Valley at 12% (1,000 acres), Kingston and Funeral Mountains at 12% (1,079 acres), Mojave and Silurian Valley at 21% (6,000 acres), Panamint Death Valley at 17% (700 acres), Pinto Lucerne Valley and Eastern Slopes at 3% (500 acres), Providence and Bullion Mountains at 6% (3,000 acres), and West Mojave and Eastern Slopes at 17% (5,000 acres).

Environmental Gradients

The conservation analysis addresses four types of environmental gradients in the Plan Area: elevation, landforms, slope, and aspect. The conservation of these four environmental gradients under the No Action Alternative within the GCP would follow the same overall pattern as Plan-wide conservation.

Natural Communities

Table IV.7-40 shows the conservation to natural communities under the GCP. A conservation summary by general community is provided below.

California forest and woodlands

Overall, approximately 8,000 acres (8%) of California forest and woodlands would be conserved under the No Action Alternative under the GCP, which is approximately 29% of the conserved acreage of California forest and woodland compared to the Plan-wide conservation of this general community. The majority of conservation would occur in the Pinto Lucerne Valley and Eastern Slopes subarea.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 2,000acres (3%) of chaparral and coastal scrubs would be conserved under the No Action Alternative under the GCP, which is approximately 14% of the conserved acreage of chaparral and coastal scrubs compared to the Plan-wide conservation of this general community.

Desert conifer woodlands

Overall, approximately 9,000 acres (8%) of desert conifer woodlands would be conserved under the No Action Alternative under the GCP, which is less proportionally than would be conserved Plan-wide and is only approximately 5% of the conserved acreage of desert conifer woodlands compared to the Plan-wide conservation of this general community. The majority of conservation would occur in the Pinto Lucerne Valley and Eastern Slopes, Providence and Bullion Mountains, and West Mojave and Eastern Slopes subareas.

Desert outcrop and badlands

Overall, approximately 109,000acres (50%) of desert outcrop and badlands would be conserved under the No Action Alternative in the GCP, which is a lesser proportion of available lands than is conserved Plan-wide, and is approximately 10% of the total acreage of conserved desert outcrop and badlands Plan-wide. The majority of

conservation would occur in the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas.

Desert scrubs

Overall, approximately 685,000 acres (23%) of desert scrubs would be conserved under the No Action Alternative under the GCP, which is a lesser proportion of available lands than is conserved Plan-wide, and is approximately 9% of the total acreage of conserved desert scrubs Plan-wide. The majority of conservation would occur in the West Mojave and Eastern Slopes and Imperial Borrego Valley subareas.

Dunes

Overall, approximately 2,000 acres (7%) of dunes would be conserved under the No Action Alternative under the GCP, which is both a lesser proportion of available lands conserved Plan-wide and only accounts for approximately 1% of the total acreage of conserved dunes Plan-wide. Most of the dunes would be conserved in the Mojave and Silurian Valley and Imperial Borrego Valley subareas.

Grasslands

Overall, approximately 12,000 acres (6%) of grasslands would be conserved under the No Action Alternative under the GCP, which is a lesser proportion of available lands compared to that conserved Plan-wide, and is approximately 36% of the total acreage of conserved grasslands Plan-wide. The majority of conservation would occur in the Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas.

Riparian

Overall, approximately 58,000 acres (29%) of riparian communities would be conserved under the No Action Alternative under the GCP, which is a lesser proportion of available lands than is conserved Plan-wide and accounts for approximately 12% of the total acreage of conserved riparian communities Plan-wide. Most of the conservation would occur in the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas.

Wetlands

Overall, approximately 45,000 acres (14%) of wetland communities would be conserved under the No Action Alternative under the GCP, which is a lesser proportion of available lands than is conserved Plan-wide and accounts for approximately 14% of the total acreage of conserved wetland communities Plan-wide. Most of the conservation would occur in the West Mojave and Eastern Slopes subarea.

Table IV.7-40
Conservation Analysis for Natural Communities Within the GCP Area – No Action Alternative

Natural Community	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Nonfederal Inholdings in Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
California forest and woodland				
Californian broadleaf forest and woodland	61,000	800	100	1,000
Californian montane conifer forest	44,000	7,000	600	7,000
Chaparral and coastal scrub community (Cismontane scrub)				
Californian mesic chaparral	3,000	20	—	20
Californian pre-montane chaparral	1,000	—	—	—
Californian xeric chaparral	19,000	600	0	600
Central and south coastal California seral scrub	1,000	—	—	—
Central and South Coastal Californian coastal sage scrub	42,000	300	900	1,000
Western Mojave and Western Sonoran Desert borderland chaparral	15,000	600	—	600
Desert conifer woodlands				
Great Basin Pinyon - Juniper Woodland	104,000	7,000	2,000	9,000
Desert outcrop and badlands				
North American warm desert bedrock cliff and outcrop	220,000	68,000	40,000	109,000
Desert Scrub				
Arizonan upland Sonoran desert scrub	8,000	3,000	10	3,000
Intermontane deep or well-drained soil scrub	24,000	2,000	4,000	6,000
Intermontane seral shrubland	68,000	500	10	500
Inter-Mountain Dry Shrubland and Grassland	152,000	21,000	16,000	36,000
Intermountain Mountain Big Sagebrush Shrubland and steppe	48,000	1,000	3,000	4,000
Lower Bajada and Fan Mojavean - Sonoran desert scrub	2,262,000	246,000	363,000	608,000
Mojave and Great Basin upper bajada and toeslope	228,000	13,000	10,000	22,000

Table IV.7-40
Conservation Analysis for Natural Communities Within the GCP Area – No Action Alternative

Natural Community	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Nonfederal Inholdings in Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
Shadscale - saltbush cool semi-desert scrub	157,000	1,000	4,000	5,000
Southern Great Basin semi-desert grassland	80	0	0	0
Dunes				
North American warm desert dunes and sand flats	34,000	800	2,000	2,000
Grassland				
California Annual and Perennial Grassland	196,000	8,000	3,000	11,000
California annual forb/grass vegetation	7,000	400	300	700
Riparian				
Madrean Warm Semi-Desert Wash Woodland/Scrub	96,000	3,000	32,000	36,000
Mojavean semi-desert wash scrub	17,000	3,000	1,000	4,000
Riparian	600	30	—	30
Sonoran-Coloradan semi-desert wash woodland/scrub	34,000	11,000	4,000	15,000
Southwestern North American riparian evergreen and deciduous woodland	6,000	400	70	500
Southwestern North American riparian/wash scrub	47,000	3,000	200	3,000
Wetland				
Arid West freshwater emergent marsh	4,000	40	—	40
Californian warm temperate marsh/seep	400	0	10	10
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	37,000	2,000	4,000	6,000
Open Water	114,000	900	10	800
Playa	52,000	20	10	30
Southwestern North American salt basin and high marsh	112,000	3,000	35,000	38,000
Wetland	8,000	30	50	80

Table IV.7-40
Conservation Analysis for Natural Communities Within the GCP Area – No Action Alternative

Natural Community	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Nonfederal Inholdings in Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
Other Land Cover				
Agriculture	693,000	5,000	4,000	8,000
Developed and Disturbed Areas	399,000	500	5,000	5,000
Rural	110,000	400	2,000	2,000
Not Mapped	4,000	50	0	50
Total	**5,430,000**	**412,000**	**534,000**	**946,000**

1 Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas on nonfederal lands.

2 Existing Protected Areas include Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on nonfederal lands

3 Includes nonfederal inholdings within existing BLM Land Use Plan conservation designations (existing Areas of Critical Environmental Concern (ACECs)). There are no mechanisms to assure the conservation of these nonfederal inholdings within the existing BLM Land Use Plan conservation designations under the No Action Alternative; however, these inholding lands could be used for mitigation for planned or future renewable energy and transmission development under the No Action Alternative.

Notes: Overlaps of Existing BLM conservation designations with Existing Protected Areas are reported in the Existing Protected Areas acreages. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Covered Species Habitat

Table IV.7-40 shows the conservation of Covered Species habitat under the No Action Alternative (before the application of CMAs) GCP. Generally, the percent conservation of Covered Species habitat in available lands is highly variable. The majority of the habitat conserved under the No Action Alternative is associated with the Imperial Borrego Valley and West Mojave and Eastern Slopes subareas.

Much of the habitat for desert tortoise and Mojave fringe-toed lizard are in the Mojave Desert in areas that occur in the BLM Existing ACECs. Flat-tailed horned lizard habitat is only conserved in the Imperial Borrego Valley, mostly in Existing Protected Areas. Tehachapi slender salamander habitat occurs in the Tehachapi Mountains where conservation is primarily composed of BLM Existing ACECs.

The majority of the habitat conservation of covered bird species under the No Action Alternative is in BLM Existing ACECs. However, conservation of Bendire's thrasher, burrowing owl and least Bell's vireo occurs in nearly every subarea of the Plan Area, and except for burrowing owl is mainly in Existing Protected Areas. The highest percent conservation of suitable habitat is 29% for golden eagle.

California condor mainly occurs in the West Mojave and Eastern Slopes subarea so the majority of conservation is also in this subarea with most of the conserved acreage in Existing Protected Areas. Golden eagle suitable habitat and associated conservation is widespread in the Plan Area with most of the conservation in BLM Existing ACECs. Swainson's hawk is primarily associated with the West Mojave and Eastern Slopes, Imperial Borrego Valley, and Owens River Valley subareas; of these subareas, the majority of suitable habitat is conserved only in the West Mojave and Eastern Slopes subarea.

Most of the suitable habitat for Gila woodpecker is conserved in the Imperial Borrego Valley in Existing Protected Areas. Conservation of mountain plover suitable habitat is divided between Existing Protected Areas and BLM Existing ACECs in the West Mojave and Eastern Slopes and Imperial Borrego Valley subareas.

Conservation of suitable habitat for desert pupfish and Mohave tui chub is entirely within Existing Protected Areas. No conservation of suitable habitat for Owens pupfish occurs under the No Action Alternative and less than 1% conservation occurs for Owens tui chub.

Conservation of suitable habitat for bighorn sheep, both inter-mountain and mountain habitat, is widespread and is divided between BLM Existing ACECs and existing conservation. At least half of the conservation Mojave ground squirrel suitable habitat is from BLM Existing ACECs. Suitable habitat for the covered bat species—California leaf-nosed bat, pallid bat, and Townsend's big-eared bat—is widespread and mainly conserved in BLM Existing ACECs.

Conservation of plant species habitat varies under the No Action Alternative of the GCP. The proportion of suitable habitat conserved in Existing Protected Areas and BLM Existing ACECs also varies by species.

Table IV.7-41
Conservation Analysis for Species Habitat Within the GCP Area – No Action Alternative

Species	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Nonfederal Inholdings in Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
Amphibian/Reptile				
Agassiz's desert tortoise	2,256,000	140,000	457,000	597,000
Flat-tailed horned lizard	310,000	112,000	6,000	118,000
Mojave fringe-toed lizard	168,000	3,000	15,000	19,000
Tehachapi slender salamander	41,000	300	2,000	2,000
Bird				
Bendire's thrasher	405,000	35,000	28,000	63,000
Burrowing owl	3,251,000	73,000	264,000	338,000
California black rail	127,000	5,000	60	5,000
California condor	996,000	43,000	22,000	66,000
Gila woodpecker	56,000	4,000	60	4,000
Golden eagle–foraging	1,007,000	86,000	233,000	318,000
Golden eagle–nesting	676,000	108,000	58,000	166,000
Greater sandhill crane	601,000	5,000	600	6,000
Least Bell's vireo	105,000	9,000	5,000	14,000
Mountain plover	811,000	6,000	5,000	12,000
Southwestern willow flycatcher	258,000	6,000	2,000	8,000
Swainson's hawk	1,340,000	15,000	14,000	29,000
Tricolored Blackbird	257,000	6,000	5,000	11,000
Western yellow-billed cuckoo	111,000	2,000	2,000	4,000
Yuma clapper rail	31,000	3,000	10	3,000
Fish				
Desert pupfish	7,000	800	0	800
Mohave tui chub	100	70	—	70
Owens pupfish	13,000	—	—	—
Owens tui chub	13,000	0	—	0
Mammal				
Bighorn sheep – inter-mountain habitat	464,000	40,000	70,000	110,000
Bighorn sheep – mountain habitat	808,000	149,000	71,000	220,000
California leaf-nosed bat	979,000	137,000	191,000	328,000

Table IV.7-41
Conservation Analysis for Species Habitat Within the GCP Area – No Action Alternative

Species	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Nonfederal Inholdings in Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
Mohave ground squirrel	1,329,000	51,000	237,000	288,000
Pallid bat	3,783,000	393,000	496,000	889,000
Townsend's big-eared bat	3,519,000	308,000	408,000	716,000
Plant				
Alkali mariposa-lily	117,000	200	80	300
Bakersfield cactus	200,000	17,000	8,000	25,000
Barstow woolly sunflower	82,000	3,000	31,000	34,000
Desert cymopterus	137,000	2,000	49,000	51,000
Little San Bernardino Mountains linanthus	129,000	5,000	400	5,000
Mojave monkeyflower	41,000	100	9,000	9,000
Mojave Tarplant	129,000	19,000	14,000	33,000
Owens Valley checkerbloom	91,000	200	20	200
Parish's daisy	72,000	19,000	800	20,000
Triple-ribbed milk-vetch	3,000	900	70	1,000

1 Available lands includes the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas on nonfederal lands.

2 Existing Protected Areas include Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on nonfederal lands.

3 Includes nonfederal inholdings within existing BLM Land Use Plan conservation designations (existing Areas of Critical Environmental Concern (ACECs)). There are no mechanisms to assure the conservation of these nonfederal inholdings within the existing BLM Land Use Plan conservation designations under the No Action Alternative; however, these inholding lands could be used for mitigation for planned or future renewable energy and transmission development under the No Action Alternative.

Notes: Overlaps of Existing BLM conservation designations with Existing Protected Areas are reported in the Existing Protected Areas acreages. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For Agassiz's desert tortoise, desert tortoise important areas were identified that include tortoise conservation areas (TCAs), desert tortoise linkages, and desert tortoise high priority habitat (see desert tortoise BGOs in Appendix C). Table IV.7-42 provides a conservation analysis for these desert tortoise important areas, organized by desert tortoise Recovery Units: Colorado Desert, Eastern Mojave, and Western Mojave. Within the Colorado Desert Recovery Unit, 47% of TCAs, linkage habitat, and high priority habitat would be conserved under the No Action Alternative on nonfederal lands. Within the Eastern Mojave Recovery Unit, 18% of the important areas would be conserved under the No Action Alternative on nonfederal lands. Within the Western Mojave Recovery Unit, 45% of TCAs and linkage habitat would be conserved under the No Action Alternative on nonfederal lands. Existing federal and state laws and regulations would require avoidance, minimization, and compensation for impacts to this federal and state listed species that would likely contribute additional conservation than is reported here.

Table IV.7-42
Conservation Analysis for Desert Tortoise
Within the GCP Area – No Action Alternative

Recovery Unit	Reserve	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Nonfederal Inholdings in Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
Colorado Desert	High Priority Habitat	31,000	800	—	800
	Linkage	63,000	100	50	200
	TCA	269,000	16,000	153,000	170,000
Colorado Desert Total		*363,000*	*17,000*	*153,000*	*170,000*
Eastern Mojave	Linkage	56,000	4,000	1,000	5,000
	TCA	66,000	6,000	11,000	18,000
Eastern Mojave Total		*122,000*	*10,000*	*12,000*	*22,000*
Western Mojave	Linkage	407,000	2,000	4,000	6,000
	TCA	392,000	23,000	332,000	355,000
Western Mojave Total		*799,000*	*256,000*	*336,000*	*361,000*
Total		**1,284,000**	**52,000**	**501,000**	**553,000**

1 Available lands includes the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas on nonfederal lands

2 Existing Protected Areas include Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on nonfederal lands

3 Includes nonfederal inholdings within existing BLM Land Use Plan conservation designations (existing Areas of Critical Environmental Concern (ACECs)). There are no mechanisms to assure the conservation of these nonfederal inholdings within the existing BLM Land Use Plan conservation designations under the No Action Alternative; however, these inholding lands could be used for mitigation for planned or future renewable energy and transmission development under the No Action Alternative.

Notes: Overlaps of Existing BLM conservation designations with Existing Protected Areas are reported in the Existing Protected Areas acreages. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were

rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For Mohave ground squirrel, Mohave ground squirrel important areas were identified that include key population centers, linkages, expansion areas, and climate change extension areas (see Mohave ground squirrel BGOs in Appendix C). Table IV.7-43 provides a conservation analysis for these Mohave ground squirrel important areas. Approximately 39% of key population centers and 40% of linkages would be conserved under the No Action Alternative on nonfederal lands. Expansion areas and climate change extension areas would be conserved at 12% and 44% respectively. Existing federal and state regulations would require avoidance, minimization, and compensation for impacts to this federally sensitive and state listed species that would likely contribute additional conservation than is reported here.

Table IV.7-43
Conservation Analysis for Mohave Ground Squirrel
Within the GCP Area – No Action Alternative

Mohave Ground Squirrel Important Area Type	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Nonfederal Inholdings in Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
Key Population Center	193,000	14,000	62,000	75,000
Linkage	103,000	3,000	38,000	41,000
Expansion Area	131,000	13,000	4,000	16,000
Climate Change Extension	258,000	21,000	91,000	112,000
Total	**684,000**	**50,000**	**194,000**	**244,000**

1 Available lands includes the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas on nonfederal lands

2 Existing Protected Areas include Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on nonfederal lands

3 Includes nonfederal inholdings within existing BLM Land Use Plan conservation designations (existing Areas of Critical Environmental Concern (ACECs)). There are no mechanisms to assure the conservation of these nonfederal inholdings within the existing BLM Land Use Plan conservation designations under the No Action Alternative; however, these inholding lands could be used for mitigation for planned or future renewable energy and transmission development under the No Action Alternative.

Notes: Overlaps of Existing BLM conservation designations with Existing Protected Areas are reported in the Existing Protected Areas acreages. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Non-Covered Species Critical Habitat

Eight Non-Covered Species have Critical Habitat within GCP Lands. Table IV.7-44 shows the total amount of Critical Habitat and the amount within each reserve designation for Non-Covered Species. These reserve designations are considered beneficial impacts for biological resources. Only one species, bighorn sheep, has Critical Habitat within existing protected areas.

Table IV.7-44
Conservation Analysis for Critical Habitat within the GCP Area for Non-Covered Species – No Action Alternative

Species	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Total Conservation (acres)
Amargosa vole	600	0	0
Arroyo toad	4,000	0	0
Cushenbury buckwheat	200	0	0
Cushenbury milk-vetch	200	0	0
Cushenbury oxytheca	30	0	0
Lane Mountain milk-vetch	2,000	0	0
Pierson's milk-vetch	400	0	0
Peninsular bighorn sheep	40,000	36,000	36,000

IV.7.3.1.6 Impacts Outside of Plan Area in No Action Alternative

Outside of the Plan Area, additional transmission lines would be needed to deliver the additional renewable energy to load centers (areas of high demand). It is assumed that new Out of Plan Area transmission lines would use existing transmission corridors between the Plan Area and existing substations in the more populated coastal areas of the state. The Out of Plan Areas through which new transmission lines might be constructed are San Diego, Los Angeles, North Palm Springs-Riverside, and Central Valley. These areas and their biological resources are described in Chapter III.7 (Biological Resources), Section III.7.12.

IV.7.3.1.6.1 Impacts of Transmission Outside of Plan Area

Section IV.7.2 describes the typical biological impacts resulting from preconstruction, construction, operations and maintenance, and decommissioning of transmission infrastructure. These types of impacts would be similar inside and outside of the Plan Area.

Although the new transmission facilities would generally be located near existing infrastructure, native vegetation and habitat types, listed and other special-status species, and jurisdictional resources occur within each of the four areas and could be impacted by

transmission development. Section III.7.12.1.2 identifies sensitive biological resources in each of the four areas.

Impacts to Biological Resources from construction of Out of Plan Area transmission lines would be as follows:

Impact BR-1: Siting, construction, decommissioning, and operational activities would result in loss of native vegetation.

As described in Section III.7.12.1.2, a variety of native vegetation types occurs throughout the four areas outside of the Plan Area. Native vegetation provides foraging, breeding, roosting, and migration stopover habitat for native wildlife, including special-status species. Several native vegetation types are rare and considered sensitive by state, federal, or local agencies; these include riparian communities, Joshua tree woodlands, oak woodlands, and others.

Although this analysis assumes that new transmission lines would be constructed within existing corridors, these corridors support both degraded and intact native vegetation. Vegetation removal would occur within new tower footprints, stringing and pulling sites, laydown and staging areas, or any additional associated ground disturbance. Areas with temporary loss of vegetation could be restored or revegetated after construction, but permanent vegetation loss would occur in tower footprints and any new access roads or substation expansion areas outside of existing fencelines. Impacts from permanent and temporary loss of native vegetation could be reduced through mitigation such as restoration or revegetation of temporary impact areas and off-site compensatory mitigation for permanent impacts. Native plants could be salvaged from permanent impact areas for use in revegetating temporary impact areas, or for enhancement in off-site compensation areas.

Impact BR-2: Siting, construction, decommissioning, and operational activities would result in adverse effects to jurisdictional waters and wetlands.

Project proponents are required to obtain a Lake and Streambed Alteration Agreement from CDFW for alterations to streams, lakes, rivers, and other areas that are jurisdictional under California Fish and Game Code Section 1602, including associated riparian areas. Under Section 404 of the federal Clean Water Act, project proponents must obtain permits from the US Army Corps of Engineers for placement of material within jurisdictional waters of the U.S. Under Section 401 of the CWA, proponents must obtain water quality certification from the state Regional Water Quality Control Boards. State and federally jurisdictional waters and wetlands may be located in some areas within the transmission routes outside of the Plan Area. These drainages, wetlands, and other jurisdictional features could be directly impacted by any ground disturbance within the feature, and

could be indirectly impacted by sedimentation and erosion occurring during construction, operation, and decommissioning.

Mitigation strategies to minimize or avoid impacts to jurisdictional waters and wetlands could include delineation and avoidance of jurisdictional features, restoration and compensatory mitigation, minimizing ground disturbance, weed management, and implementation of construction Best Management Practices to minimize erosion, sedimentation, and dust.

Impact BR-3: Siting, construction, decommissioning, and operational activities would result in degradation of vegetation.

In addition to direct loss of native vegetation, construction and operation of new transmission lines could indirectly affect vegetation. During construction, excess airborne dust, erosion, and sedimentation may affect plants' productivity and nutritional qualities for wildlife. The introduction or spread of nonnative, invasive weeds can displace native species and degrade vegetation, or even result in type conversion from native communities to weed-dominated vegetation. Use of dust suppressants, exposure to fire, and implementation of fire management techniques could also result in habitat degradation. Operational impacts that could degrade vegetation include ongoing spread of invasive weeds, potential for spills of toxic materials, and dust from access road use or maintenance; however, the risk and magnitude of these impacts would be lower during operation than construction because the level of activity would be substantially lower. Mitigation strategies that could reduce or avoid degradation of vegetation include use of nontoxic soil binders or water for dust suppression, best management practices to minimize risk of spills affecting vegetation, erosion and sedimentation control measures, and weed prevention and management.

Impact BR-4: Siting, construction, decommissioning, and operational activities would result in loss of listed and sensitive plants; disturbance, injury, and mortality of listed and sensitive wildlife; and habitat for listed and sensitive plants and wildlife.

The transmission facilities outside the Plan Area would traverse habitat for listed and special-status species, including desert tortoise, arroyo toad, barefoot banded gecko, Mohave ground squirrel, golden eagle, California condor, least Bell's vireo, coastal California gnatcatcher, southwestern willow flycatcher, a wide variety of rare plants, and other species as described in Section III.7.12.1.2. Direct impacts that could occur during construction include disturbance to or mortality of special-status wildlife, removal of special-status plants, disruption of special-status bird and bat breeding activities if construction occurs during the nesting or roosting seasons, and habitat loss (both short-term and long-term). Potential indirect impacts to special-status species during construction include spread of invasive weeds, and impacts from dust, erosion, sedimentation, and noise/vibration. Potential impacts to special-status species during operation include disruption of aerial

migration and foraging routes and local wildlife corridors; disturbance from corona noise and night lighting; bird and bat collisions with transmission infrastructure; and electrocution of raptors and other birds on power lines. Mitigation strategies to minimize or avoid these impacts include pre-construction surveys, minimizing ground disturbance and vibration, avoidance of occupied and suitable habitat to the extent feasible, revegetation and compensation for impacts to habitat, weed management, implementation of best management practices to minimize dust and water quality impacts, worker education, seasonal restrictions and buffer zones for special-status species, directing permanent lighting away from adjacent habitat, keeping work areas free of trash and micro-trash, minimizing subsidies for common ravens, and construction of facilities according to current APLIC standards to reduce collision and electrocution hazards.

Impact BR-5: Siting, construction, decommissioning, and operational activities could result in loss of nesting birds (violation of the federal Migratory Bird Treaty Act and California Fish and Game Code Sections 3503, 3503.5, 3511, and 3513).

Disturbance to nesting raptors and other native birds that interferes with breeding or otherwise results in loss of a nest, eggs, or nestlings would violate the federal Migratory Bird Treaty Act and the California Fish and Game Code. Removal of vegetation, helicopter use for construction or maintenance, earth moving and other ground disturbance, noise and vibration, and human presence associated with construction and operation of transmission lines outside of the Plan Area could disturb nesting birds if conducted during the breeding season. Mitigation strategies to avoid or minimize these impacts include seasonal restrictions, pre-construction nest surveys, worker education, and buffer zones around active nests.

Impact BR-6: Siting, construction, decommissioning, and operational activities would adversely affect habitat linkages and wildlife movement corridors, the movement of fish, and native wildlife nursery sites.

In general, transmission infrastructure outside of the Plan Area would not substantially affect wildlife movement or habitat linkages for terrestrial species. Due to the intermittent locations and temporary nature of construction activity along a transmission line, wildlife may be temporarily excluded from specific locations but would not be physically prevented from moving around project equipment in the transmission corridor. Wildlife would continue to have access to surrounding habitat. During operation, the widely spaced towers would not physically obstruct wildlife movement; wildlife would move under and around the towers. Transmission access roads may either disrupt or facilitate wildlife movement depending on the mobility of individual species and the road design. However, fatal collisions with transmission lines could disrupt bird and bat movement or migration during operation (see Impact BR-9 for detailed discussion of collision risks). Native wildlife

nursery sites, such as bat maternity roosts, could be indirectly affected by noise, dust, vibration, and human presence or could be directly impacted if areas supporting nursery sites are removed during construction.

Mitigation strategies to minimize or avoid these impacts include pre-construction surveys, minimizing ground disturbance, avoidance of occupied habitat, revegetation and compensation for impacts to habitat, weed management, worker education, seasonal restrictions and buffer zones for nursery sites, and directing permanent lighting away from adjacent habitat. Construction of facilities according to current APLIC standards to reduce collision and electrocution hazards would minimize the potential for transmission lines to interfere with bird and bat movement.

Impact BR-7: Siting, construction, decommissioning, and operational activities would result in habitat fragmentation and isolation of populations of listed and sensitive plants and wildlife.

Construction and operation of transmission facilities is unlikely to result in habitat fragmentation and isolation of populations of listed and sensitive plants and wildlife because transmission lines do not create solid obstacles to movement. These facilities are linear, with widely spaced towers, and are expected to be sited within existing transmission corridors. Therefore, there is minimal potential for this impact to occur from transmission outside of the Plan Area.

Impact BR-8: Construction of generation facilities or transmission lines would result in increased predation of listed and sensitive wildlife species.

Construction and operation of transmission lines could increase the density of species that prey on listed and sensitive wildlife. During construction, use of water for dust suppression and trash left by workers could attract predators such as coyotes, foxes, and ravens to work areas. During operation, transmission towers can provide supplemental roosting, perching, and nesting habitat for ravens. An increase in the presence of predators could result in increased predation on listed species like the desert tortoise, Mohave ground squirrel, arroyo toad, barefoot banded gecko, and other special-status species.

Mitigation strategies to minimize or avoid these impacts include worker education, keeping work areas free of trash, minimizing subsidies for common ravens and other predators, and using nontoxic soil binders or minimizing the amount of water used for dust suppression.

Impact BR-9: Operational activities would result in avian and bat injury and mortality from collisions, thermal flux or electrocution at generation and transmission facilities.

Transmission facilities would not result in any impacts associated with thermal flux, as this phenomenon is associated with solar "power tower" projects. However, birds could collide

with or be electrocuted on transmission infrastructure. Bird collisions with power lines are a function of several factors, including:

- Behavior, with behaviors such as flushing, courtship displays, and aerial hunting resulting in potential distraction from the presence of power lines;
- High frequency of flights between nesting, feeding, and roosting areas near power lines;
- Wing and body size and vision acuity;
- Environmental conditions such as inclement weather and darkness;
- Engineering aspects of the power line, including design and siting (APLIC 2012).

The transmission lines outside of the Plan Area are not expected to pose a substantial collision risk to bats due to their echolocation ability, though information on bat collisions with transmission lines is minimal (Keeley 2001). Mitigation strategies include construction of transmission facilities according to current APLIC standards to reduce collision and electrocution hazards.

IV.7.3.1.6.2 Impacts of Existing BLM Land Use Plans Outside of Plan Area

Under the No Action Alternative, the existing BLM CDCA land use plan would continue to be implemented on CDCA lands. Under the No Action Alternative, renewable energy projects would still be developed through BLM's existing policies. Impacts on biological resources would be of the types described above in Section IV.7.2.1, with similar mitigation measures being included on a case-by-case basis.

The existing land designations, such as existing protected areas, ACECs, and National Scenic and Historic Trails, would continue to be managed to protect their associated values and resources.

IV.7.3.1.7 CEQA Significance Determination: No Action Alternative

Impact BR-1: Siting, construction, decommissioning, and operational activities would result in loss of native vegetation.

The No Action Alternative would result in loss of native vegetation that would be an adverse impact to natural communities and the species these communities support. These impacts would be concentrated in the Cadiz Valley and Chocolate Mountains, Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas, but would also occur in the Kingston and Funeral Mountains, Mojave and Silurian Valley, and Providence and Bullion Mountains subareas. Impacts would predominantly be in desert scrubs, riparian, wetlands, grasslands, and desert outcrop and badlands. The adverse effects of the loss of native vegetation would be avoided and minimized through implementation of typical project-by-

project mitigation measures related to avoidance and minimization. Existing laws and regulations under the No Action Alternative would not require compensation for all the loss of all natural communities in the Plan Area; therefore, the adverse effects from the loss of native vegetation, including rare natural communities and locally rare occurrences, would be a significant and unavoidable impact.

Impact BR-2: Siting, construction, decommissioning, and operational activities would result in adverse effects to jurisdictional waters and wetlands.

The No Action Alternative would result in adverse effects to jurisdictional waters and wetlands. These impacts would occur in riparian and wetland natural communities determined to be jurisdictional and open water areas of the Salton Sea. The adverse effects to jurisdictional waters and wetlands would be avoided, minimized, and compensated through the implementation existing applicable laws and regulations related to jurisdictional waters and wetlands. Implementation of typical mitigation consistent with existing applicable laws and regulations would reduce the adverse effects to jurisdictional waters and wetlands to a less than significant impact.

Impact BR-3: Siting, construction, decommissioning, and operational activities would result in degradation of vegetation.

The No Action Alternative would result in degradation of vegetation that would be an adverse impact to natural communities and the species these communities support. These impacts would be concentrated in the Cadiz Valley and Chocolate Mountains, Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas, but would also occur in the Kingston and Funeral Mountains, Mojave and Silurian Valley, and Providence and Bullion Mountains subareas. Impacts would predominantly be in desert scrubs, riparian, wetlands, grasslands, and desert outcrop and badlands. The adverse effects of vegetation degradation would be avoided and minimized through implementation of typical project-by-project mitigation measures related to avoidance and minimization. Implementation of typical mitigation consistent with existing applicable laws and regulations would reduce the adverse effects of vegetation degradation to a less than significant impact.

Impact BR-4: Siting, construction, decommissioning, and operational activities would result in loss of listed and sensitive plants; disturbance, injury, and mortality of listed and sensitive wildlife; and habitat for listed and sensitive plants and wildlife.

The No Action Alternative would result in an adverse impact to listed and sensitive plants and wildlife and habitat for listed and sensitive plant and wildlife. These impacts would be concentrated in the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, Pinto Lucerne Valley and Eastern Slopes, and West Mojave and Eastern Slopes subareas, but would also occur in the Kingston and Funeral Mountains, Mojave and Silurian Valley, and

Providence and Bullion Mountains subareas. These impacts would be widespread across the Plan Area, including substantial impacts to important areas identified for desert tortoise, bighorn sheep, and Mohave ground squirrel. The adverse effects plant and wildlife species loss and habitat loss would be avoided, minimized, and compensated through the implementation of typical mitigation necessary to comply with existing applicable laws and regulations for listed and sensitive plants and wildlife, which would be implemented on a project-by-project basis under the No Action Alternative. These typical mitigation measures would not be expected to offset the magnitude and extent of all the impacts to listed and sensitive plants and wildlife expected under the No Action Alternative because project-by-project mitigation is unlikely to achieve large blocks of contiguous habitat in a connected reserve system across the Plan Area and will lack the inter-agency, coordinated management and monitoring of habitat lands for these species. Therefore, the adverse effects from the loss of listed and sensitive plants and wildlife and their habitat under the No Action Alternative would be a significant and unavoidable impact.

The significance of impact on Non-Covered Species would be as discussed for the Covered Species.

Impact BR-5: Siting, construction, decommissioning, and operational activities could result in loss of nesting birds (violation of the federal Migratory Bird Treaty Act and California Fish and Game Code Sections 3503, 3503.5, 3511, and 3513).

The No Action Alternative has the potential to result in an adverse impact resulting from the loss of nesting birds. These impacts have the potential to occur anywhere renewable energy and transmission projects are implemented under the No Action Alternative. The potential adverse effects to nesting birds would be avoided through the implementation of existing applicable laws and regulations related to nesting birds. Implementation of typical mitigation consistent with existing applicable laws and regulations would reduce the potential adverse effects to nesting birds to a less than significant impact.

Impact BR-6: Siting, construction, decommissioning, and operational activities would adversely affect habitat linkages and wildlife movement corridors, the movement of fish, and native wildlife nursery sites.

The No Action Alternative would result in adverse impacts to habitat linkages and wildlife movement corridors. These impacts to habitat linkages and movement of migratory birds would be concentrated in the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas, but would also occur in the Kingston and Funeral Mountains, Mojave and Silurian Valley, and Providence and Bullion Mountains subareas. The potential adverse effects to habitat linkages and wildlife movement would be avoided, minimized, and compensated through the implementation of typical mitigation necessary to comply with existing

applicable laws and regulations for listed and sensitive wildlife and the movement of migratory birds, which would be implemented on a project-by-project basis under the No Action Alternative. These typical mitigation measures would not be expected to offset the magnitude and extent of all the impacts to listed and sensitive wildlife movement and migratory bird movement expected under the No Action Alternative because project-by-project mitigation is unlikely to achieve large blocks of contiguous habitat in a connected reserve system across the Plan Area and will lack the inter-agency, coordinated management and monitoring of habitat lands for species. Therefore, the adverse effects on habitat linkages, wildlife movement, and movement of migratory birds under the No Action Alternative would be a significant and unavoidable impact.

Impact BR-7: Siting, construction, decommissioning, and operational activities would result in habitat fragmentation and isolation of populations of listed and sensitive plants and wildlife.

The No Action Alternative would have the potential to result in adverse impacts of habitat fragmentation and population isolation. Under the No Action Alternative, the potential adverse effects of habitat fragmentation and population isolation would not be avoided, minimized, or compensated on a project-by-project basis, except as necessary to comply with existing applicable laws and regulation pertaining to listed and sensitive plants and wildlife. Project-by-project mitigation is unlikely to achieve large blocks of contiguous habitat in a connected reserve system across the Plan Area and will lack the inter-agency, coordinated management and monitoring of habitat lands for species; therefore, the adverse effects of habitat fragmentation and population isolation under the No Action Alternative would be a significant and unavoidable impact.

Impact BR-8: Construction of generation facilities or transmission lines would result in increased predation of listed and sensitive wildlife species.

The No Action Alternative would result in an increase in predator populations in the Plan Area, which would adversely affect susceptible Covered Species. These impacts have the potential to occur anywhere renewable energy and transmission projects are implemented under the No Action Alternative. The potential adverse effects of increased predation would be avoided and minimized through the implementation of existing applicable laws and regulations related listed and sensitive wildlife. Implementation of typical mitigation consistent with existing applicable laws and regulations would reduce the potential adverse effects of increased predation to a less than significant impact.

The level of impact on Non-Covered Species would be as discussed for the Covered Species.

Impact BR-9: Operational activities would result in avian and bat injury and mortality from collisions, thermal flux or electrocution at generation and transmission facilities.

The No Action Alternative would result in loss of avian and bat Covered Species that would be an adverse impact to avian and bat populations. These impacts would be concentrated in the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, Pinto Lucerne Valley and Eastern Slopes, and West Mojave and Eastern Slopes subareas, but would also occur in the Kingston and Funeral Mountains, Mojave and Silurian Valley, and Providence and Bullion Mountains subareas. The adverse effects of avian and bat injury and mortality would be avoided, minimized, and compensated through the implementation of typical mitigation necessary to comply with existing applicable laws and regulations for avian and bat species, which would be implemented on a project-by-project basis under the No Action Alternative. These typical mitigation measures would not be expected to offset the magnitude and extent of all the avian and bat injury and mortality expected under the No Action Alternative; therefore, the adverse effects from avian and bat injury and mortality would be a significant and unavoidable impact.

The significance of impact on Non-Covered Species would be as discussed for the Covered Species.

IV.7.3.2 Preferred Alternative

The impact analysis for biological resources under the Preferred Alternative is provided below.

IV.7.3.2.1 Plan-Wide Impacts of Implementing the DRECP: Preferred Alternative

This section provides the Plan-wide assessment of impacts of implementing the DRECP for the Preferred Alternative. This Plan-wide assessment addresses the impacts and mitigation measures from renewable energy and transmission development and impacts of the reserve design.

IV.7.3.2.1.1 Plan-Wide Impacts and Mitigation Measures from Renewable Energy and Transmission Development

Impact Assessment

The following provides the Plan-wide assessment of impacts and mitigation measures for renewable energy and transmission development for the Preferred Alternative. Impacts are organized by biological resources impact statement (i.e., BR-1 through BR-9). The Preferred Alternative includes DFAs (2,024,000 acres) and transmission corridors where approximately 177,000 acres of ground disturbance related impacts and operational impacts would occur. As described in Section IV.7.1.1, the reported impact acreage (e.g., acres of impact to natural communities or Covered Species habitat) is based on the overlap of the DFAs and the resource (e.g., mapped natural community or modeled Covered Species habitat) times the proportion of the impacts from Covered Activity development anticipated with the DFA. The Preferred Alternative includes Future Assessment Areas (FAAs) and DRECP Variance Lands, and these areas are not considered impacted or conserved in this analysis. The Preferred Alternative also includes Special Analysis Areas (SAAs) that represent areas subject to further considerations of the analysis in Volume IV and public comment to inform the designation that is expected to be made for the area prior to the signing of a NEPA Record of Decision(s) and CEQA certification for the DRECP. In the Preferred Alternative, SAAs are not analyzed as impacted or conserved. The impacts of development of both SAAs and FAAs are presented in the analysis in Alternative 2. The analysis of designating these lands as conservation lands is presented in Alternatives 1, 3, and 4.

Impact BR-1: Siting, construction, decommissioning, and operational activities would result in loss of native vegetation.

The following provides an analysis of the impacts of the development of Covered Activities on natural communities in the Plan Area. Table IV.7-45 shows the impacts to natural

communities, which are calculated based on the overlap of the DFAs and the mapped natural community times the proportion of the development anticipate with the DFA as described in Section IV.7.1.1. An effects summary by general community is provided below. Appendix R2 provides a detailed analysis of natural community effects by ecoregion subarea.

California forest and woodlands

California forest and woodlands are limited to the higher elevations in the Plan Area, where they occur primarily in the Tehachapi Mountains in Kern County and the mountains in southwest San Bernardino County.

Overall, approximately 100 acres (0.1%) of California forest and woodlands would be impacted under the Preferred Alternative. Because California forest and woodlands are located primarily in peripheral portions of the Plan Area with little overlap with DFAs, impacts to these communities are limited in extent and are primarily associated with effects from transmission. Furthermore, species-specific CMAs would be implemented to address breeding or roosting species (AM-DFA-BAT-1, AM-RES-BAT-1, and AM-RES-BAT-2; see Chapter II.3, Preferred Alternative) that would also help reduce adverse effects to California forest and woodlands. Additionally, the Plan-wide CMAs, and in particular the CMAs that address soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) would also help diminish these effects.

California forest and woodlands provide habitat for the following Covered Species: Tehachapi slender salamander, golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, bighorn sheep, and Bakersfield cactus. Therefore, impacts to this community may have an adverse effect on these species by removing or degrading suitable habitat; however, application of species-specific CMAs would help avoid and minimize that effect and compensation CMAs (COMP-1 and COMP-2) would offset the effect.

Chaparral and coastal scrubs (Cismontane scrub)

Chaparral in the Plan Area occurs in the Tehachapi Mountains and at the base of the San Gabriel Mountains near Antelope Valley in the southern portion of the Plan Area. Coastal scrubs in the Plan Area generally occur east of the Tehachapi Mountains near Mojave, in the southern portion of the Plan Area from Mountain Top Junction east of Highway 138 east to Mojave River Forks Regional Park, in the Fort Irwin area, and in scattered locations west to the Plan Area boundary.

Overall, approximately 2,000 acres (1.4%) of the chaparral and coastal scrubs would be impacted under the Preferred Alternative. Impacts would be primarily from solar

development and most impacts would be to Central and South Coastal Californian coastal sage scrub. Most impacts to chaparral and coastal scrubs would occur in the West Mojave and Eastern Slopes subarea, but some would also occur in the Pinto Lucerne Valley and Eastern Slopes subarea. CMAs would be implemented to address breeding, nesting, or roosting species supported by chaparral and coastal scrubs that would reduce adverse effects to these natural communities (AM-DFA-BAT-1, AM-RES-BAT-1, AM-RES-BAT-2, AM-DFA-PLANT-1 through AM-DFA-PLANT-3, AM-RES-BLM-PLANT-1, and AM-RES-RL-PLANT-1 through AM-RES-PLANT-3). Furthermore, CMAs would be implemented to address soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects and compensation CMAs (COMP-1 and COMP-2) would offset the effect.

Chaparral and coastal scrubs provide habitat for the following Covered Species: golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, Parish's daisy, and Bakersfield cactus. Therefore, impacts to this general community may have a negative effect on these species by removing or degrading suitable habitat; however, application of the previously described species-specific CMAs would help avoid and minimize that effect and the compensation CMAs discussed above would offset the effect.

Desert conifer woodlands

The desert conifer woodlands in the Plan Area primarily occur in the Tehachapi Mountains, along the southwestern boundary of the Plan Area to the San Gabriel Mountains, in the Providence and Bullion Mountains, Kingston and Funeral Mountains, and the Clark Mountain Range. All of the desert conifer woodlands in the Plan Area are classified as Great Basin pinyon-juniper woodland.

Overall, approximately 1,000 acres (0.5%) of the desert conifer woodlands would be impacted under the Preferred Alternative. Impacts would be primarily from solar development. Most impacts to desert conifer woodlands would occur in the West Mojave and Eastern Slopes subarea, but some would also occur in the Pinto Lucerne Valley and Eastern Slopes subarea. CMAs would be implemented to address breeding or roosting species (AM-DFA-BAT-1, AM-RES- BAT-1, and AM-RES-BAT-2) that would also help reduce adverse effects to desert conifer woodlands. In addition, the Plan-wide CMAs to address soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects and compensation CMAs (COMP-1 and COMP-2) would offset the effect.

Desert conifer woodlands provide habitat for the following Covered Species: Tehachapi slender salamander, golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, bighorn sheep, and Parish's daisy. Therefore, impacts to this

general community may have a negative effect on these species by removing or degrading suitable habitat; however, application of the Plan-wide and species-specific CMAs described above would help avoid and minimize that effect and compensation CMAs would offset the effect.

Desert outcrop and badlands

Desert outcrop and badlands occur throughout much of the Plan Area, but is most prevalent in the eastern and southern portions south of the Piute Valley. All of the desert outcrop and badlands is classified as North American warm desert bedrock cliff and outcrop.

Overall, approximately 10,000 acres (0.6%) of the desert outcrop and badlands would be impacted under the Preferred Alternative. About half of the impacts would be from solar development. Impacts to desert outcrop and badlands are widely distributed with impacts in seven of the ten subareas. However, impacts are concentrated in two subareas; the majority (73%) of impacts to desert outcrop and badlands would occur in the Cadiz Valley and Chocolate Mountains subarea and about a quarter (23%) would occur in the Imperial Borrego Valley subarea. CMAs would be implemented to address breeding, nesting, or roosting species (AM-DFA-BAT-1, AM-RES-BAT-1, and AM-RES-BAT-2) as well as soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects and compensation CMAs (COMP-1 and COMP-2) would offset the effect.

Desert outcrop and badlands provide habitat for the following Covered Species: golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, and bighorn sheep. These communities also provide habitat for desert kit fox (Planning Species). Covered species associated with desert scrub may also be associated with this general community. Therefore, impacts to desert outcrop and badlands may have a negative effect on these species by removing or degrading suitable habitat; however, application of species-specific CMAs would help avoid and minimize that effect and compensation CMAs would offset the effect.

Desert scrubs

Desert scrubs, which comprise more than 70% of the Plan Area, are distributed throughout the Plan Area. There are nine desert scrub natural communities identified in the Plan Area, but the majority of the general community on available lands is comprised of lower bajada and fan Mojavean–Sonoran desert scrub (82%).

Overall, approximately 92,000 (0.7%) acres of desert scrubs would be impacted under the Preferred Alternative. Impacts would be primarily from solar development, but transmission accounts for about 17,000 acres of impacts to desert scrub and wind and

geothermal both account for 7-8% of impacts to desert scrub. Most impacts would be to the most prevalent desert scrub community: lower bajada and fan Mojavean–Sonoran desert scrub. Intermontane seral shrubland is the community that would have the greatest proportion of impacts, but only 3% of this community would be impacted (compared with 2% or less for all other desert scrub communities).

The majority of impacts to desert scrub would occur in the West Mojave and Eastern Slopes and Cadiz Valley and Chocolate Mountains subareas (59%), but impacts to desert scrubs are widely distributed; the only subareas without impacts to this general community are the Panamint Death Valley and Piute Valley and Sacramento Mountains subareas. CMAs that address breeding, nesting, or roosting species that would also help reduce adverse effects to desert scrubs. These include avoidance, setbacks, and/or suitable habitat impact caps for flat-tailed horned lizard (AM-RES-RL-ICS-8 and AM-RES-RL-ICS-9), desert tortoise (AM-DFA-ICS-7, AM-DFA-ICS-9 through AM-DFA-ICS-11, and AM-RES-OL-ICS-1 through AM-RES-OL-ICS-4), Mohave ground squirrel (AM-DFA-ICS-38 and AM-RES-BLM-ICS-8), bat Covered Species (AM-DFA-BAT-1, AM-RES-BAT-1,and AM-RES-BAT-2), and plant Covered Species (AM-DFA-PLANT-1 through AM-DFA-PLANT-3, AM-RES-BLM-PLANT-1, and AM-RES-RL-PLANT-1 through AM-RES-PLANT-3). Furthermore, CMAs would be implemented to address soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) would help avoid and minimize these effects, and compensation CMAs (COMP-1 and COMP-2) would offset the effects.

Desert scrubs provide habitat for the following Covered Species: golden eagle, California condor, Bendire's thrasher, burrowing owl, Swainson's hawk, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, Mohave ground squirrel, bighorn sheep, desert tortoise, flat-tailed horned lizard, Mojave fringe-toed lizard, triple-ribbed milk-vetch, alkali mariposa-lily, desert cymopterus, Mojave tarplant, Little San Bernardino Mountains linanthus, Mojave monkeyflower, and Bakersfield cactus. These communities also provide habitat for burro deer and desert kit fox (Planning Species). Therefore, impacts to this general community may have a negative effect on these species by removing or degrading suitable habitat; however, application of species-specific CMAs described above would help avoid and minimize that effect and compensation CMAs would offset the effect.

Dunes

Dune communities are restricted but scattered across the Plan Area, and include approximately 12 systems in the Mojave Desert and lower Great Basin Desert and 4 systems in the Sonoran Desert, as well as numerous smaller dunes. The largest dune area is located in the East Mesa-Sand Hill portion of the Sonoran Desert. Dune natural communities in the Plan Area are classified as North American warm desert dunes and sand flats.

Impacts to dune communities would be minimized under the Preferred Alternative through application of the dune avoidance and minimization CMAs (AM-DFA-DUNE-1 through AM-DFA-DUNE-3, AM-RES-BLM-DUNE-1, AM-RES-BLM-DUNE-2, and AM-RES-RL-DUNE-1 through AM-RES-RL-DUNE-3) as well as landscape-level CMAs for Aeolian processes (AM-LL-3). Compensation CMAs would offset any impacts determined to be unavoidable (COMP-1 and COMP-2).

Dune communities provide habitat for the following Covered Species: Mojave fringe-toed lizard and flat-tailed horned lizard. Therefore, avoidance of impacts to this general community would benefit these species and compensation CMAs would offset any impacts determined to be unavoidable.

Grasslands

Grassland communities cover just over 1% of the Plan Area but are scattered throughout the Area. They are most common in the western portion of the Plan Area, especially along the boundary from east of Bakersfield to the southern end of the San Bernardino National Forest.

Overall, approximately 6,000 acres (2.6%) of grassland communities would be impacted under the Preferred Alternative. The majority of impacts to grassland communities (87%) would be from solar development in the West Mojave and Eastern Slopes subarea. Impacts would also occur in the Cadiz Valley and Chocolate Mountains, Mojave and Silurian Valley, and Pinto Lucerne Valley and Eastern Slopes subareas. CMAs would be implemented to address breeding, nesting, or roosting species (AM-DFA-AG-2), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects and compensation CMAs would offset the effect (COMP-1 and COMP-2).

Grassland communities provide habitat for the following Covered Species: golden eagle, burrowing owl, Swainson's hawk, and Bendire's thrasher. These communities also provide habitat for desert kit fox (Planning Species). Therefore, impacts to this community may have a negative effect on these species by removing or degrading suitable habitat; however, application of species-specific CMAs would help avoid and minimize that effect and compensation CMAs would offset the effect.

Riparian

Riparian communities cover nearly 6% of the Plan Area but are scattered throughout the Area, but are most common in the southern portion of the Plan Area in the Colorado River area, in the Cadiz and Chocolate Mountains and Imperial Borrego Valley subareas, and along major drainages such as the Mojave, Colorado, and Amargosa Rivers.

Riparian communities include microphyll woodlands, which are important vegetation assemblages often associated with desert washes that are comprised of the Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub natural communities. A subset of these communities would be considered groundwater-dependent vegetation (e.g., mesquite bosques). Under the Preferred Alternative, microphyll woodlands occur within DFAs primarily in the McCoy Valley area in the Cadiz Valley and Chocolate Mountains ecoregion subarea.

Impacts to riparian communities would be avoided under the Preferred Alternative through application of the riparian CMAs (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). In addition, setbacks from riparian communities would be required that range from 200 feet for Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub to 0.25 mile for Southwestern North American riparian evergreen and deciduous woodland and Southwestern North American riparian/wash scrub. Compensation CMAs would offset any impacts determined to be unavoidable (COMP-1 and COMP-2).

Riparian communities provide habitat for the following Covered Species: California black rail, Gila woodpecker, Yuma clapper rail, least Bell's vireo, southwestern willow flycatcher, western yellow-billed cuckoo, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, and Tehachapi slender salamander. In addition, species associated with desert scrub are also associated with Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub. These communities also provide habitat for burro deer (Planning Species). Avoidance of impacts to riparian communities would benefit these species. Furthermore, there are also CMAs to avoid impacts to riparian species including pre-construction nesting bird surveys for riparian and wetland bird Covered Species. Application of species-specific CMAs would also benefit species associated with riparian communities. Compensation CMAs would offset any unavoidable impacts.

Wetlands

Wetland communities cover nearly 5% of the Plan Area but are scattered throughout the Area, including the Owens River Valley, and around various dry lakes and playas. The largest single contributor to wetlands in the Plan Area is the open water of the Salton Sea (22% of the wetlands). However, several isolated wetlands occur throughout the Plan Area (e.g. Amargosa WSR) and these are important for their tendency to be populated with locally endemic species of plants and animals.

Overall, approximately 10,000 acres (1.1%) of wetland communities, specifically North American warm desert alkaline scrub, herb playa and wet flat, and open water, would be

impacted under the Preferred Alternative. Impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep would be avoided under the Preferred Alternative through application of the wetland CMAs, including a 0.25-mile setback. About half of the impacts to wetland communities would be in DFAs in open water of the Salton Sea in the Imperial Borrego Valley subarea. Of the remaining impacts to wetland communities, the majority would occur from solar development in the West Mojave and Eastern Slopes and Cadiz Valley and Chocolate Mountains subareas.

CMAs for North American warm desert alkaline scrub and herb playa and wet flat, southwestern North American salt basin and high marsh, and other undifferentiated wetland-related land covers (i.e., "Playa", "Wetland", and "Open Water") would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided riparian or wetland natural communities (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). Compensation CMAs would offset any impacts to these features (COMP-1 and COMP-2).

Wetland communities provide habitat for the following Covered Species: California black rail, Yuma clapper rail, tricolored blackbird, California leaf-nosed bat, pallid bat, Townsend's big-eared bat, desert pupfish, Mohave tui chub, Owens pupfish, and Owens tui chub. In addition, species associated with desert scrub are also associated with Southwestern North American Salt Basin and High Marsh. Avoidance of impacts to wetland communities would benefit these species. Furthermore, there are also CMAs to avoid impacts to wetland species including pre-construction nesting bird surveys for riparian and wetland bird Covered Species. In addition, application of species-specific CMAs would help avoid and minimize impacts to species associated with wetland communities. Compensation CMAs would offset any impacts determined to be unavoidable.

Table IV.7-45
Plan-Wide Impact Analysis for Natural Communities – Preferred Alternative

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
California forest and woodland						
Californian broadleaf forest and woodland	72,000	40	0	0	0	40
Californian montane conifer forest	78,000	40	10	0	30	80
Chaparral and coastal scrub community (Cismontane scrub)						
Californian mesic chaparral	4,000	0	0	0	0	0
Californian pre-montane chaparral	1,000	0	0	0	0	0

Table IV.7-45
Plan-Wide Impact Analysis for Natural Communities – Preferred Alternative

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Californian xeric chaparral	24,000	0	0	0	20	20
Central and south coastal California seral scrub	1,000	20	0	0	0	20
Central and South Coastal Californian coastal sage scrub	54,000	1,000	200	0	200	1,000
Western Mojave and Western Sonoran Desert borderland chaparral	24,000	0	0	0	20	20
Desert conifer woodlands						
Great Basin Pinyon - Juniper Woodland	287,000	1,000	100	0	200	1,000
Desert outcrop and badlands						
North American warm desert bedrock cliff and outcrop	1,613,000	5,000	700	600	3,000	10,000
Desert Scrub						
Arizonan upland Sonoran desert scrub	57,000	0	0	0	0	0
Intermontane deep or well-drained soil scrub	106,000	300	40	0	100	500
Intermontane seral shrubland	74,000	2,000	100	0	100	2,000
Inter-Mountain Dry Shrubland and Grassland	437,000	1,000	100	600	300	2,000
Intermountain Mountain Big Sagebrush Shrubland and steppe	76,000	20	0	0	0	20
Lower Bajada and Fan Mojavean - Sonoran desert scrub	10,859,000	52,000	6,000	6,000	16,000	80,000
Mojave and Great Basin upper bajada and toeslope	1,333,000	3,000	400	0	400	3,000
Shadscale - saltbush cool semi-desert scrub	279,000	2,000	100	400	500	3,000

Table IV.7-45
Plan-Wide Impact Analysis for Natural Communities – Preferred Alternative

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Southern Great Basin semi-desert grassland	100	0	0	0	0	0
Dunes[3]						
North American warm desert dunes and sand flats	282,000	0	0	0	0	0
Grassland						
California Annual and Perennial Grassland	230,000	5,000	300	0	500	6,000
California annual forb/grass vegetation	8,000	300	20	0	0	300
Riparian[3]						
Madrean Warm Semi-Desert Wash Woodland/Scrub	697,000	0	0	0	0	0
Mojavean semi-desert wash scrub	30,000	0	0	0	0	0
Riparian	600	0	0	0	0	0
Sonoran-Coloradan semi-desert wash woodland/scrub	191,000	0	0	0	0	0
Southwestern North American riparian evergreen and deciduous woodland	6,000	0	0	0	0	0
Southwestern North American riparian/wash scrub	66,000	0	0	0	0	0
Wetland[3]						
Arid West freshwater emergent marsh	4,000	0	0	0	0	0
Californian warm temperate marsh/seep	400	0	0	0	0	0
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	310,000	3,000	200	0	200	3,000
Open Water	209,000	3,000	20	1,000	1,000	5,000
Playa	78,000	0	0	0	0	0

Table IV.7-45
Plan-Wide Impact Analysis for Natural Communities – Preferred Alternative

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Southwestern North American salt basin and high marsh	261,000	2,000	200	0	200	2,000
Wetland	8,000	90	10	0	40	100
Other Land Cover – Developed and Disturbed Areas						
Agriculture	711,000	36,000	800	9,000	8,000	53,000
Developed and Disturbed Areas	447,000	100	0	60	2,000	2,000
Rural	7,000	90	0	30	0	100
Not Mapped	114,000	1,000	20	300	600	2,000
Total	**19,040,000**	**118,000**	**9,000**	**17,000**	**33,000**	**177,000**

1 Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

2 Solar impacts include ground-mounted distributed generation.

3 Impacts to the dune community, riparian communities, arid west freshwater emergent marsh, and Californian warm temperate marsh/seep would be avoided through implementation of CMAs. Only impacts determined to be unavoidable would occur in these natural communities.

Notes: The natural community classification system is described in Chapter III.7 and follows CDFG 2012. Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Rare natural communities include natural community alliances with state rarity rankings S1, S2, or S3 (critically imperiled, imperiled, or vulnerable). Of the 51 rare natural community alliances mapped in the Plan Area, 8 rare alliances would be impacted under the Preferred Alternative, but two of these alliances would have impacts less than 10 acres. In addition, 80% of the impact acreage (2,600 acres) would be comprised of impacts to Joshua tree woodland (*Yucca brevifolia*) occurring in the West Mojave and Eastern Slopes subarea. CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection that would help avoid and minimize these effects on rare natural communities. Additionally, AM-DFA-ONC-1 and -2 would require inventorying and preserving or transplanting cactus, yuccas, and succulents. While the compensation CMAs would offset the lost habitat acreage of these impacts, the compensation CMAs do not specifically require the replacement of or mitigation for specific rare natural community alliances. After application of the CMAs,

impacts to rare natural communities from the Preferred Alternative would be adverse and would require mitigation.

Impact BR-2: Siting, construction, decommissioning, and operational activities would result in adverse effects to jurisdictional waters and wetlands.

Siting, construction, decommissioning, and operations of Covered Activities have the potential to result in adverse effects to federal or state jurisdictional waters and wetlands. In the Plan Area, jurisdictional waters and wetlands would likely include the riparian and wetland communities analyzed under Impact BR-1 and may also include other features including playas, seeps/springs, major rivers, and ephemeral drainage networks.

All Covered Activities would be required to comply with existing, applicable federal and state laws and regulations related to jurisdictional waters and wetlands. Additionally, all impacts to riparian communities would be avoided under the Preferred Alternative through application of the riparian CMAs including riparian setbacks. Impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep wetlands would be avoided under the Preferred Alternative through application of the wetland CMAs, including wetland setbacks (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). Approximately 10,000 acres of other wetland communities would be impacted under the Preferred Alternative. See the analysis for the loss of native vegetation provided under BR-1 for a discussion of these potential impacts. All or a portion of the estimated wetland impacts could result in adverse effects to jurisdictional waters and wetlands without compensation. Compensation CMAs would offset any impacts determined to be unavoidable.

Additionally, playas, seeps/springs, major rivers, and ephemeral drainage networks are waters and wetland features that provide hydrological functions and may be determined to be jurisdictional waters and wetlands. Adverse effects to these features would have the potential to impact jurisdictional waters and wetlands.

<u>Playa</u>

Approximately 1% (approximately 3,000 acres) of playa would be impacted by Covered Activities under the Preferred Alternative. The majority of impacts would be associated with solar at 3,000 acres, with approximately 200 acres of wind impacts and approximately 200 acres of transmission impacts. Ecoregion subareas of potential impacts to playas include the Cadiz Valley and Chocolate Mountains, Kingston and Funeral Mountains, Mojave and Silurian Valley, Owens River Valley, Pinto Lucerne Valley and Eastern Slopes, Providence and Bullion Mountains, and West Mojave and Eastern Slopes subareas.

Application of species-specific CMAs would help avoid and minimize impacts to species associated with playas (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). CMAs would also require compliance with all applicable laws and regulations pertaining to wetlands and waters, including playas (AM-PW-9 and AM-LL-2). Compensation CMAs would offset impacts to these features (COMP-1 and COMP-2).

Seep/Spring

Seeps occur within DFAs and transmission corridors and potential impacts to seep/spring have the potential to occur in the following ecoregion subareas: Imperial Borrego Valley, Mojave and Silurian Valley, Owens River Valley, Pinto Lucerne Valley and Eastern Slopes, and West Mojave and Eastern Slopes. Impacts to seeps and springs would be adverse absent implementation of avoidance measures. Impacts to seep/spring locations and associated Covered Species and hydrological functions would be avoided through adherence to avoidance and minimization CMAs, including habitat assessments and avoidance of seeps with 0.25-mile setbacks (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). Compensation CMAs would offset any impacts determined to be unavoidable (COMP-1 and COMP-2).

Major Rivers

Under the Preferred Alternative, there would no direct impacts to any of the four major rivers within the Plan Area – Amargosa, Colorado, Mojave, and Owens Rivers. However, changes in hydrological conditions associated with development could adversely impact these rivers. Riparian CMAs would require avoidance of these features with setbacks (AM-DFA-RIPWET-1).

Ephemeral Drainages

Ephemeral drainages occur throughout the Plan Area, and some of these features could be determined to state or federal jurisdictional waters. Impacts to ephemeral drainages would likely occur from Covered Activities. Application of riparian avoidance CMAs (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9) would avoid and minimize impacts to a portion of the ephemeral drainages within DFAs. Additionally, all Covered Activities would be required to comply with existing, applicable federal and state laws and regulations related to jurisdictional waters and wetlands.

Impact BR-3: Siting, construction, decommissioning, and operational activities would result in degradation of vegetation.

Siting, construction, decommissioning, and operational Covered Activities would result in the degradation of vegetation through the creation dust, use of dust suppressants, exposure

to fire, implementation of fire management techniques, and the introduction of invasive plants. The degree to which these factors contribute to the degradation of vegetation corresponds to the distribution of Covered Activities in the Plan Area that would result in dust, fire, and introduction of invasive plants or that would use dust suppressants and implement fire management. As described in Section IV.7.2.1, the extent of some of these adverse effects may occur at or beyond the source of these effects, the project footprint, or the project area depending on the type of effect and other environmental considerations. As such, the potential adverse effects caused by these factors were evaluated using the overlap of the natural community mapping and the estimated distribution of Covered Activities across subareas.

Under the Preferred Alternative, approximately 11% of the total Plan Area would be DFAs that allow renewable energy development. Based on the planned renewable energy generation and transmission under the Preferred Alternative, the vegetation degradation from dust, dust suppressants, fire, fire management, and invasive plants would collectively result in the terrestrial operational impacts shown in Table IV.7-46. These impacts would mostly occur in the Imperial Borrego Valley, West Mojave and Eastern Slopes, Cadiz Valley and Chocolate Mountains, and the Pinto Lucerne Valley and Eastern Slopes subareas, which would experience most of the terrestrial operational impacts. As a result, these subareas would have the greatest potential to result in the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants.

Table IV.7-46
Plan-Wide Terrestrial Operational Impacts – Preferred Alternative

Ecoregion Subarea	Solar Impact[1] (acres)	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Cadiz Valley and Chocolate Mountains	26,000	14,000	-	13,000	53,000
Imperial Borrego Valley	40,000	2,000	17,000	12,000	71,000
Kingston and Funeral Mountains	3,000	-	-	-	3,000
Mojave and Silurian Valley	3,000	-	-	1,000	4,000
Owens River Valley	500	-	1,000	400	1,900
Panamint Death Valley	-	-	-	-	-
Pinto Lucerne Valley and Eastern Slopes	8,000	10,000	-	4,000	22,000
Piute Valley and Sacramento Mountains	-	-	-	-	-

Table IV.7-46
Plan-Wide Terrestrial Operational Impacts – Preferred Alternative

Ecoregion Subarea	Solar Impact[1] (acres)	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Providence and Bullion Mountains	1,000	-	-	400	1,400
West Mojave and Eastern Slopes	37,000	15,000	-	2,000	54,000
Total	**118,000**	**40,000**	**17,000**	**33,000**	**208,000**

[1] Solar impacts include ground-mounted distributed generation.

Notes: Terrestrial operational impacts collectively refers to vegetation degradation impacts (BR-3) from dust, dust suppressants, fire, fire management, and invasive plants and wildlife impacts (BR-4) from creation of noise, predator avoidance behavior, lighting and glare. For the purposes of analysis, terrestrial operational impacts were quantified using the project area extent for solar and geothermal, using 25% of the project area for wind, and the right-of-way area for transmission. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Dust and Dust Suppressants

Most natural communities and plant Covered Species would be susceptible to degradation from physical damage, reduced photosynthesis, and reduced net primary productivity as a result of dust created by on-road and off-road vehicle use associated with the operation and maintenance of renewable energy facilities. Specifically, water usage by Mojave desert shrubs has been shown to be particularly affected by dust deposition. These natural communities are affected the most by Covered Activities in the West Mojave and Eastern Slopes and the subarea. The Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, as well as the Pinto Lucerne Valley and Eastern Slopes subareas also contain lesser levels of impacts to these natural communities by Covered Activities. Plant Covered Species that could also be affected by abrasion, vegetation loss, root exposure, and burial as a result of dust are prevalent near the DFAs in the West Mojave and Eastern Slopes subarea with a smaller distribution in the Pinto Lucerne Valley and Eastern Slopes subarea DFAs. Therefore, considering the distribution of DFAs and these sensitive natural communities and plant Covered Species the West Mojave and Eastern Slopes subarea would experience the greatest magnitude of dust-related impacts. Vegetation degradation as a result of dust would also be prevalent in the Cadiz Valley and Chocolate Mountains and Pinto Lucerne Valley and Eastern Slopes subareas to a lesser extent.

The application of dust suppressants is a common management practice used during construction and operations and is a Covered Activity under the Plan and has been shown

to effectively reduce dust. Dust-related degradation of vegetation would be further reduced with the incorporation of avoidance and minimization CMAs. The Plan-wide avoidance and minimization CMAs would generally identify vegetation in the project area (AM-PW-1), utilize standard practices to minimize the amount of exposed soils (AM-PW-14) and reduce dust caused by soil erosion (AM-PW-10). Additionally, the Preferred Alternative would implement CMAs that applicable in the DFAs would also serve to reduce vegetation degradation from dust including AM-DFA-ONC-1 and AM-DFA-ONC-2, which would require habitat assessments of natural communities and protection/salvage plans for particular plants found on project sites. CMAs AM-DFA-PLANT-1, AM-DFA-PLANT-2, and AM-DFA-PLANT-3 would also result in the surveying of plant Covered Species, avoidance and a 0.25 mile setback from plant Covered Species occurrences, and would place an impact caps on suitable habitat for plant Covered Species. Furthermore, various CMAs would reduce potential vegetation degradation from dust created by operation and maintenance of transmission in the DRECP Plan-Wide Reserve Design Envelope for the Preferred Alternative including measures for avoidance of plant Covered Species by substations, setbacks for plant Covered Species, and impact caps on suitable habitat for plant Covered Species (AM-RES-RL-PLANT-1 through AM-RES-RL-PLANT-3). The CMA AM-TRANS-4 would restrict transmission to within designated utility corridors, thereby minimizing the creation of dust from exposed soils as a result of transmission throughout the Plan Area.

The application of dust suppressants can result in chemical and physical changes to an ecosystem, alter hydrological function of soils and drainage areas, and increase pollutant loads in surface water. As a result, riparian and wetland natural communities are the most likely vegetation to be affected by the use of dust suppressants. These natural communities are most prevalent near DFAs in the Imperial Borrego Valley subarea and the Mojave and Silurian Valley subareas. Plant Covered Species that could also be affected by dust suppressants and are prevalent near the DFAs in the West Mojave and Eastern Slopes subarea with a smaller distribution in the Pinto Lucerne Valley and Eastern Slopes subarea DFAs. As such, the Imperial Borrego Valley, Mojave and Silurian Valley, and West Mojave and Eastern Slopes subareas would contain the largest potential amount of vegetation degradation because of dust suppressants.

Avoidance and minimization CMAs implemented as part of the Preferred Alternative, including AM-PW-9 and AM-PW-10, would utilize standard practices to reduce erosion and runoff of dust suppressant outside of areas where they are applied. The CMA AM-DFA-RIPWET-1 would also establish setbacks and avoidance requirements for all riparian natural communities and some wetland natural communities. Therefore, these measures would minimize potential adverse effects of dust suppressants used during siting, construction, and operational Covered Activities.

Fire and Fire Management

Anthropogenic ignitions of fires that could result from operational and maintenance activities associated with renewable energy facilities could destroy the natural communities found in the Plan Area. Desert scrub natural communities are naturally slow to recover from fire episodes and are more vulnerable to proliferation of non-native grasses that can often successfully compete with and overcome native assemblages. The addition of non-native grasses can create a positive feedback loop of increasing fire frequency and intensity, resulting in substantial and potentially long-term natural community type conversion. Within the Plan Area desert scrub natural communities are primarily affected by Covered Activities within the West Mojave and Eastern Slopes and Cadiz Valley and Chocolate Mountains subareas. However, impacts to desert scrub is widely distributed; the only subareas without impacts to this general community are the Panamint Death Valley and Piute Valley and Sacramento Mountains subareas. With the distribution of renewable energy development and these natural communities, the greatest magnitude of vegetation degradation as a result of fire would occur in the West Mojave and Eastern Slopes as well as the Cadiz Valley and Chocolate Mountains subareas.

Construction and maintenance of fire breaks and other fire management techniques would typically result in the removal of vegetation from woodland, chaparral, and grassland natural communities and can create advantageous circumstances for invasive plants to grow. However, target fuels reductions in areas of high incidence of non-native, invasive, species (e.g. salt cedar hot spots) can have a beneficial effect on native habitats. Within the Plan Area the potential impacts from Covered Activities on California forest and woodland natural communities are located mostly in the West Mojave and Eastern Slopes subareas; chaparral and coastal scrubs potential impacts are primarily located within the West Mojave and Eastern Slopes subarea, but some would also occur in the Pinto Lucerne Valley and Eastern Slopes subarea; and the majority of the grassland natural communities affected by Covered Activities would occur in the West Mojave and Eastern Slopes subarea. Therefore, with the distribution of renewable energy development and the location of these natural communities that are sensitive to fire management techniques during operation and maintenance activities, the primary areas of vegetation degradation would be located in the West Mojave and Eastern Slopes subarea.

The potential degradation of vegetation due to fire and fire management would vary depending on project-specific factors, such as size of the project footprint and proximity to fire prone areas. However, under the Preferred Alternative avoidance and minimization CMAs would be implemented to reduce the potential adverse operational effects of fire and fire management. Specifically, AM-PW-12 would require projects to use standard practices for fire prevention/protection that would minimize the amount of vegetation clearing and fuel modification. Additionally AM-RES-RL-ICS-5 would require fire suppression activities to

minimize the amount of desert tortoise habitat burned in the DRECP Plan-Wide Reserve Design Envelope for the Preferred Alternative. These measures would minimize the amount of vegetation degradation from fire and fire management during siting, construction, and operational Covered Activities.

Invasive Plants

The introduction of invasive plants can be caused by siting, construction, and operational Covered Activities including transportation of invasive plants on the undercarriage of vehicles, creation of disturbed areas, and other environmental changes that favor invasive plant growth. Invasive plants can degrade vegetation by increasing the fuel load and the frequency of fires in plant communities and may induce allelopathic effects that hinder the growth or establishment of other plant species. As such, the most vegetation degradation caused by introduction of invasive plants under the Preferred Alternative would occur in the West Mojave and Eastern Slopes subarea and to a lesser extent in the Cadiz Valley and Chocolate Mountains as well as the Pinto Lucerne Valley and Eastern Slopes subareas.

The potential vegetation degradation effects that could result from siting, construction, and operational Covered Activities would be minimized through implementation of avoidance and minimization CMAs under the Preferred Alternative. Specifically, the Plan-wide CMA AM-PW-7 would ensure the timely restoration of temporarily disturbed areas that could otherwise promote invasive plants during operations. Additional CMAs would require the use of standard practices to control weeds and invasive plants (AM-PW-11) and require the responsible use of herbicides to reduce potential vegetation degradation (AM-PW-15) for all Covered Activities throughout the Plan Area.

Impact BR-4: Siting, construction, decommissioning, and operational activities would result in loss of listed and sensitive plants; disturbance, injury, and mortality of listed and sensitive wildlife; and habitat for listed and sensitive plants and wildlife.

The following provides an analysis of the impacts of the development of Covered Activities on sensitive plants and wildlife and their habitat in the Plan Area, including Covered Species and Non-Covered Species. In addition to the analysis of the loss of sensitive species and their habitat provided here under Impact BR-4, impacts to nesting birds are addressed under Impact BR-5, impacts on wildlife movement are addressed under Impact BR-6, impacts of habitat fragmentation are addressed under Impact BR-7, impacts of increased predation are addressed under Impact BR-8, and impact of operations on avian, bat, and insect species are addressed under Impact BR-9.

The impact analysis under Impact BR-4 includes the following subsections:

- Covered Species Habitat Impact Analysis by Ecoregion Subarea

- Specific Covered Species Impact Analyses
- Indirect and Terrestrial Operational Impact Analysis
- Non-Covered Species Impact Analysis

Covered Species Habitat Impact Analysis by Ecoregion Subarea

Impacts to plant and wildlife species and their habitat would result from the implementation of Covered Activities. Table IV.7-47 provides the Plan-wide impact analysis for Covered Species habitat. As described in Section IV.7.1.1, the reported impact acreage is based on the overlap of the DFAs and the modeled Covered Species habitat times the proportion of the impacts from Covered Activity development anticipated with the DFA. The majority of these impacts under the Preferred Alternative would occur in the Imperial Borrego Valley, West Mojave and Eastern Slopes, and Cadiz Valley and Chocolate Mountains subareas as described below. Impacts to plant and wildlife species and their habitat under the Preferred Alternative would also occur in the following subareas: Kingston and Funeral Mountains, Mojave and Silurian Valley, Owens River Valley, Pinto Lucerne Valley and Eastern Slopes, and Providence and Bullion Mountains. Supplemental impact analysis tables for impacts to Covered Species habitat by ecoregion subarea are provided in Appendix R2.

West Mojave and Eastern Slopes Ecoregion Subarea

Renewable energy development in the West Mojave and Eastern Slopes subarea would mostly be in the form of solar technologies, but would also include impacts from wind and transmission development. Typical impacts from these Covered Activities on plant and wildlife species and their habitat is described in Section IV.7.2. Impacts to suitable habitat for amphibians and reptiles would occur in this subarea, including Agassiz's desert tortoise, Mojave fringe-toed lizard, and Tehachapi slender salamander. The siting of the DFAs under the Preferred Alternative largely avoid habitat for Mojave fringe-toed lizard and Tehachapi slender salamander, and CMAs that require avoidance of and setbacks from riparian habitat, wetland habitat, and dune habitat (AM-DFA-RIPWET-1 and AM-DFA-DUNE-1) would further avoid and minimize the impacts on these species to less than the acreage reported in Table IV.7-47. Compensation CMAs would offset habitat loss for these species (COMP-1, COMP-2, and COMP-3).

Suitable habitat for several bird Covered Species in the West Mojave and Eastern Slopes subarea would be impacted, including Bendire's thrasher, burrowing owl, California condor, golden eagle, least Bell's vireo, mountain plover, southwestern willow flycatcher, Swainson's hawk, and tricolored blackbird. CMAs require avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further avoid and minimize the impacts on southwestern willow flycatcher, least Bell's vireo, and tricolored

blackbird to less than the acreage reported in Table IV.7-47. Additionally, the CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs (AM-DFA-AG-2). Compensation CMAs would offset habitat loss for these species.

Suitable habitat for bighorn sheep, desert kit fox, Mohave ground squirrel, pallid bat, and Townsend's big-eared bat would be impacted in the West Mojave and Eastern Slopes subarea. The siting of the DFAs under the Preferred Alternative largely avoids habitat for bighorn sheep and important habitat for Mohave ground squirrel. The CMAs require avoidance of and setbacks from riparian and wetland habitat (AM-DFA-RIPWET-1) that would further reduce the impacts on these habitats used by Mohave ground squirrel, pallid bat, and Townsend's big-eared bat to less than the acreage reported in Table IV.7-47. Compensation CMAs would offset habitat loss for these species.

Suitable habitat for the following plant Covered Species would be impacted in the West Mojave and Eastern Slopes subarea: alkali mariposa-lily, Bakersfield cactus, Barstow woolly sunflower, desert cymopterus, Mojave monkeyflower, Mojave tarplant, and Owens Valley checkerbloom. Although modeled suitable habitat for these species may be impacted by Covered Activities in this subarea, the CMAs require surveys for plant Covered Species for all Covered Activities, and the CMAs requiring avoidance of and setbacks from occupied habitat (AM-DFA-PLANT-1 through AM-DFA-PLANT-3) would further reduce the impacts on these species to less than the acreage reported in Table IV.7-47. Compensation CMAs would offset habitat loss for these species.

Cadiz Valley and Chocolate Mountains Ecoregion Subarea

Renewable energy development within the Cadiz Valley and Chocolate Mountains subarea would be primarily from solar energy development, but would also include impacts from wind and transmission. Impacted suitable habitat would be mostly desert scrub in this subarea. The Cadiz Valley and Chocolate Mountains subarea provides suitable habitat for amphibians and reptiles, including Agassiz's desert tortoise and Mojave fringe-toed lizard that would be impacted. The siting of the DFAs under the Preferred Alternative largely avoid habitat for Mojave fringe-toed lizard, and CMAs require avoidance of and setbacks from dune habitat (AM-DFA-DUNE-1 through AM-DFA-DUNE-3) would further avoid and minimize the impacts on this species to less than the acreage reported in Table IV.7-47. Compensation CMAs would offset habitat loss for these species.

Impacts would occur to the following covered bird species in this subarea: Bendire's thrasher, burrowing owl, California black rail, Gila woodpecker, golden eagle, greater sandhill crane, mountain plover, and western yellow-billed cuckoo. CMAs requiring avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further avoid and minimize the impacts on California black rail and western yellow-

billed cuckoo to less than the acreage reported in Table IV.7-47. Compensation CMAs would offset habitat loss for these species.

Impacts to habitat for all Covered mammals would occur in the Cadiz Valley and Chocolate Mountains subarea except for Mohave ground squirrel. The siting of the DFAs under the Preferred Alternative largely avoid habitat for bighorn sheep. The CMAs require avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further reduce the impacts on those habitats used by California leaf-nosed bat, pallid bat, and Townsend's big-eared bat to less than the acreage reported in Table IV.7-47. Compensation CMAs would offset habitat loss for these species.

No impacts to suitable habitat for covered plant species would occur in the Cadiz Valley and Chocolate Mountains subarea. Furthermore, the CMAs require surveys for plant Covered Species for all Covered Activities, and the CMAs requiring avoidance of and setbacks from occupied habitat (AM-DFA-PLANT-1 through AM-DFA-PLANT-3) would further reduce the impacts on these species. Compensation CMAs would offset habitat loss for these species.

Imperial Borrego Valley Ecoregion Subarea

Renewable energy development within the Imperial Borrego Valley subarea would be primarily from solar energy development, but would also include impacts from wind, geothermal, and transmission development. Impacts would occur to desert outcrop and badland, desert scrub, and wetland communities. The Imperial Borrego Valley subarea provides suitable habitat for Agassiz's desert tortoise and flat-tailed horned lizard. The siting of the DFAs under the Preferred Alternative largely avoid habitat for flat-tailed horned lizard, and CMAs that require avoidance of and setbacks from dune habitat (AM-DFA-DUNE-1 through AM-DFA-DUNE-3) would further avoid and minimize the impacts on this species to less than the acreage reported in Table IV.7-47.

Impacts would occur to suitable habitat for the following covered bird species in this subarea: Bendire's thrasher, burrowing owl, California black rail, Gila woodpecker, golden eagle, greater sandhill crane, least Bell's vireo, mountain plover, southwestern willow flycatcher, Swainson's hawk, tricolored blackbird, and Yuma clapper rail. CMAs that require avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further avoid and minimize the impacts on southwestern willow flycatcher, tricolored blackbird, least Bell's vireo, California black rail, and Yuma clapper rail to less than the acreage reported in Table IV.7-47. Additionally, the CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs (AM-DFA-AG-2).

Impacts would occur to suitable habitat for desert pupfish, the only fish species with suitable habitat in this subarea. The avoidance and setback provisions for managed

wetlands and agricultural drains (AM-DFA-RIPWET-1) would conserve wetland and riparian features within the agricultural matrix and provide conservation benefits to desert pupfish.

Only minimal impacts (about 100 acres) would occur to bighorn sheep mountain habitat in the Imperial Borrego Valley subarea. Impacts to suitable habitat for other covered mammals species would occur for California leaf-nosed bat, pallid bat, and Townsend's big-eared bat. Impacts to desert kit fox, a Planning Species, would also occur in this subarea. The siting of the DFAs under the Preferred Alternative largely avoid habitat for bighorn sheep. The CMAs that require avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further reduce the impacts on these habitats used by California leaf-nosed bat, pallid bat, and Townsend's big-eared bat to less than the acreage reported in Table IV.7-47.

Table IV.7-47
Plan-Wide Impact Analysis for Covered Species Habitat – Preferred Alternative

Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Amphibian/Reptile						
Agassiz's desert tortoise	9,858,000	34,000	4,000	800	8,000	47,000
Flat-tailed horned lizard	758,000	10,000	40	7,000	5,000	22,000
Mojave fringe-toed lizard	1,094,000	10,000	1,000	-	4,000	15,000
Tehachapi slender salamander	48,000	100	20	-	-	100
Bird						
Bendire's thrasher	2,141,000	4,000	600	500	2,000	6,000
Burrowing owl	5,269,000	85,000	6,000	14,000	18,000	123,000
California black rail	197,000	2,000	20	1,000	800	4,000
California condor	1,240,000	17,000	2,000	80	900	20,000
Gila woodpecker	106,000	500	10	200	300	1,000
Golden eagle–foraging	10,747,000	22,000	3,000	800	8,000	33,000
Golden eagle–nesting	4,443,000	2,000	200	20	2,000	4,000
Greater sandhill crane	617,000	32,000	600	8,000	7,000	49,000
Least Bell's vireo	226,000	100	20	20	70	200
Mountain plover	828,000	39,000	1,000	8,000	8,000	56,000

Table IV.7-47
Plan-Wide Impact Analysis for Covered Species Habitat – Preferred Alternative

Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Southwestern willow flycatcher	317,000	4,000	90	2,000	1,000	7,000
Swainson's hawk	1,455,000	34,000	2,000	6,000	4,000	46,000
Tricolored blackbird	271,000	7,000	300	20	300	8,000
Western yellow-billed cuckoo	152,000	200	10	-	40	200
Yuma clapper rail	51,000	50	-	20	10	80
Fish						
Desert pupfish	8,000	80	-	30	60	200
Mohave tui chub	300	-	-	-	-	-
Owens pupfish	18,000	-	-	-	10	10
Owens tui chub	17,000	-	-	-	10	10
Mammal						
Bighorn sheep – inter-mountain habitat	3,854,000	3,000	400	80	1,000	4,000
Bighorn sheep – mountain habitat	6,649,000	2,000	600	-	3,000	6,000
California leaf-nosed bat	7,133,000	23,000	2,000	4,000	12,000	41,000
Mohave ground squirrel	2,383,000	21,000	2,000	900	2,000	26,000
Pallid bat	16,412,000	66,000	7,000	7,000	21,000	101,000
Townsend's big-eared bat	14,677,000	65,000	7,000	7,000	20,000	98,000
Plant						
Alkali mariposa-lily	119,000	2,000	100	-	100	3,000
Bakersfield cactus	278,000	4,000	500	-	50	4,000
Barstow woolly sunflower	154,000	500	60	-	40	600
Desert cymopterus	205,000	900	40	-	30	900
Little San Bernardino Mountains linanthus	289,000	500	100	-	100	700
Mojave monkeyflower	161,000	1,000	60	-	100	1,000
Mojave tarplant	265,000	900	40	50	100	1,000

Table IV.7-47
Plan-Wide Impact Analysis for Covered Species Habitat – Preferred Alternative

Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Owens Valley checkerbloom	147,000	10	-	-	100	100
Parish's daisy	188,000	600	200	-	300	1,000
Triple-ribbed milk-vetch	8,000	-	-	-	-	-

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
[2] Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Specific Covered Species Impact Analyses

Desert Tortoise

For Agassiz's desert tortoise, desert tortoise important areas were identified that include tortoise conservation areas (TCAs), desert tortoise linkages, and desert tortoise high priority habitat (see desert tortoise BGOs in Appendix C).

Under the Preferred Alternative, DFAs occur within TCAs in the northern Fremont Valley (in the area converted to intensive agriculture), and DFAs overlap with the boundaries of the Desert Tortoise Research Natural Area, West Rand Mountains, and Fremont-Kramer TCAs. CMAs would require avoidance of all TCAs, except for impacts associated with transmission or impacts in agricultural portion of TCA in northern Fremont Valley (AM-DFA-ICS-5). The DFAs abut TCAs in the following areas: in the West Mojave – 2 ecoregion subunit (the Desert Tortoise Research Natural Area), in the Pinto – 1 ecoregion subunit in upper Lucerne Valley (Ord-Rodman), and in the Cadiz – 1 ecoregion subunit in east Riverside (Chuckwalla). Impacts from anticipated transmission development would occur in the Superior-Cronese TCA and Chuckwalla TCA under the Preferred Alternative. While many of the DFAs were developed based on highly disturbed or fragmented lands, some DFAs were the result of public scoping and are included to address the need for greater flexibility for renewable energy development. While attempts were made to avoid the most sensitive areas, some DFAs do overlap sensitive desert tortoise resources.

Under the Preferred Alternative, DFAs overlap desert tortoise linkages in the following areas: in the Kingston – 1 ecoregion subunit in Pahrump Valley, in the Cadiz – 1 ecoregion subunit in the Chuckwalla to Chemehuevi linkage, in the Pinto – 1 ecoregion subunit in the Ord Rodman to Joshua Tree National Park linkage, and in the West Mojave – 5 ecoregion subunit in the Fremont Kramer to Ord Rodman linkage. The SAA located in the Kingston – 1 and Mojave – 2 ecoregion subunits occurs within the desert tortoise linkage connecting Superior Cronese to Mojave National Preserve to Shadow Valley to Death Valley National Park.

Table IV.7-48 provides an impact analysis for these desert tortoise important areas, organized by desert tortoise Recovery Units: Colorado Desert, Eastern Mojave, and Western Mojave. Within the Colorado Desert Recovery Unit, approximately 10,000 acres of TCAs, linkage habitat, and high priority habitat would be impacted under the Preferred Alternative. Within the Eastern Mojave Recovery Unit, approximately 1,000 acres of linkage habitat would be impacted under the Preferred Alternative. Within the Western Mojave Recovery Unit, approximately 15,000 acres of TCAs and linkage habitat would be impacted under the Preferred Alternative.

Table IV.7-48
Plan-Wide Impact Analysis for
Desert Tortoise Important Areas – Preferred Alternative

Recovery Unit	Desert Tortoise Important Area	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Colorado Desert	High Priority Habitat	387,000	2,000	300	-	70	3,000
	Linkage	469,000	500	80	-	100	700
	TCA	3,130,000	500	70	-	7,000	7,000
Colorado Desert Total		*3,986,000*	*3,000*	*500*	-	*7,000*	*10,000*
Eastern Mojave	Linkage	784,000	1,000	-	-	-	1,000
	TCA	2,096,000	-	-	-	-	-
Eastern Mojave Total		*2,880,000*	*1,000*	-	-	-	*1,000*
Western Mojave	Linkage	1,204,000	11,000	2,000	-	1,000	13,000
	TCA	2,313,000	600	50	-	1,000	2,000
Western Mojave Total		*3,517,000*	*11,000*	*2,000*	-	*2,000*	*15,000*
Total		**10,383,000**	**16,000**	**2,000**	**-**	**9,000**	**27,000**

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
[2] Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal

facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table

Approximately 4,143,000 acres of USFWS-designated critical habitat for desert tortoise occurs in the Plan Area (excluding military, Open OHV Areas, and tribal lands). Although the TCAs include desert tortoise critical habitat, these two areas are not entirely the same geographically. The Preferred Alternative would result in approximately 8,000 (approximately 0.2% of the total critical habitat for desert tortoise in the Plan Area) acres of impact to desert tortoise critical habitat. Approximately 86% (7,000 acres) of the impacts would occur in the Chuckwalla critical habitat unit and the majority of that impact (6,500 acres) from transmission impacts. Approximately 800 acres of impact from transmission development would occur in the Superior-Cronese critical habitat unit, and approximately 300 acres of impact would occur in the Ord-Rodman critical habitat unit from transmission development. As described in Volume II, transmission impacts assume resources are impacted within the entire right-of-way width that varies by transmission line voltage. Transmission development does not preclude the use of the area by tortoise, but does lead to the potential for increased risk of predation or striking by vehicles associated with access roads to support transmission lines.

CMAs would require avoidance of TCAs, except for impacts associated with transmission or impacts in disturbed portions of TCAs (AM-DFA-ICS-5 and AM-DFA-ICS-7). Additionally, the CMAs would prohibit impacts that affect the viability of desert tortoise linkages (AM-DFA-ICS-8 and AM-DFA-ICS-9). Compensation CMAs would be required for impacts to desert tortoise, including the desert tortoise important areas.

Flat-tailed Horned Lizard

For flat-tailed horned lizard, flat-tailed horned lizard (FTHL) management areas were identified in the FTHL Rangewide Management Strategy (RMS). The FTHL management areas cover approximately 393,000 acres in the Plan Area (excluding military, Open OHV Areas, and tribal lands) and include the following units: Borrego Badlands, East Mesa, Ocotillo Wells, West Mesa, and Yuha Basin. Approximately 7,000 acres of impact to FTHL management areas would result from Covered Activities under the Preferred Alternative, in the East Mesa, Ocotillo Wells, West Mesa, and Yuha Basin units. Avoidance and minimization CMAs (AM-DFA-ICS-16 and AM-PW-1 through 17) would avoid and minimize impacts to flat-tailed horned lizard. Compensation CMAs would offset habitat loss for flat-tailed horned lizard.

Bendire's Thrasher

Bendire's thrasher habitat occurs in scattered locations across the Mojave and Sonoran/Colorado deserts of the Plan Area. As shown in Table IV.7-47, approximately 6,000 acres of impacts to habitat for Bendire's thrasher would occur under the Preferred Alternative. Avoidance and minimization CMAs (AM-DFA-ICS-17 and AM-PW-1 through 17) would avoid and minimize impacts to Bendire's thrasher. Compensation CMAs would offset habitat loss for Bendire's thrasher.

California Condor

California condor nesting has not been documented in the Plan Area and condor use of the Plan Area is limited to foraging and temporary roosting. As shown in Table IV.7-47, approximately 20,000 acres of impacts to potential foraging and temporary roosting habitat for California condor would occur throughout the Plan Area. As specified in AM-DFA-ICS-18, take of California condor will be avoided by Covered Activities. Additionally, the other condor CMAs (AM-DFA-ICS-19 through 25) and the Plan-wide avoidance and minimization CMAs (AM-PW-1 through 17) would further avoid and minimize impacts to California condor. Compensation CMAs would offset foraging and temporary roosting habitat loss for California condor.

Golden Eagle

In addition to the analysis of impacts to nesting and foraging habitat summarized in Table IV.7-47, a territory-based analysis was conducted for golden eagle (see methods and results in the Chapter IV.7 portion of Appendix R2). Using the golden eagle nest database, golden eagle territories were identified and individually buffered by 1 mile (representing breeding areas around known nests) and 4 miles (representing use areas around known nests). From the 420 nest locations known from the Plan Area, a total of 161 territories were identified in available lands of the Plan Area. Under the Preferred Alternative, 38 territories have DFAs or transmission corridors within 1 mile of a nest. Implementation of the CMAs for golden eagles (AM-DFA-ICS-2) would prohibit siting or construction of Covered Activities within 1 mile of an active golden eagle nest; therefore, impacts within 1 mile of these golden eagle territories would be avoided. Under the Preferred Alternative, 71 territories have DFAs or transmission corridors within 4 miles of nest, and the use area of these territories could be impacted through harassment, increased risk of striking hazards, and reduced foraging opportunities by Covered Activities depending on the siting of specific projects. The CMAs for golden eagles (Section II.3.1.2.5) and the approach to golden eagles (see Appendix H) describes how the impact to golden eagles would be avoided, minimized, and compensated. Based on the 2013 analysis, no more than 15 golden eagles per year in 2014 would be allowed to be taken within the Plan Area, which would be reassessed annually.

Desert Bighorn Sheep

For desert bighorn sheep, bighorn sheep mountain habitat and intermountain (linkage) habitat have been identified in the Plan Area. Under the Preferred Alternative, approximately 6,000 acres of mountain habitat and 4,000 acres of intermountain habitat would be impacted. A majority of these impacts would occur in the Pinto Lucerne Valley and Eastern Slopes ecoregion subarea in the Lucerne Valley area and in the Cadiz Valley and Eastern Slope ecoregion subarea in the intermountain linkage across the I-10 corridor in East Riverside SEZ area. The SAA in the Silurian Valley occurs within bighorn sheep mountain and intermountain habitat. The Preferred Alternative identifies DFAs that largely avoid impacts to bighorn sheep mountain and intermountain habitat. Avoidance, minimization, and compensation CMAs have been developed to offset the loss of habitat for bighorn sheep.

Although the Peninsular bighorn sheep Distinct Population Segment (DPS) is not a Covered Species, approximately 47,000 acres of USFWS-designated critical habitat for the Peninsular bighorn sheep DPS occurs in the Plan Area (excluding military, Open OHV Areas, and tribal lands). These critical habitat units include Carrizo Canyon and South Santa Rosa Mountain. The Preferred Alternative would not result in any impacts to critical habitat for the Peninsular bighorn sheep DPS.

Mohave Ground Squirrel

Mohave ground squirrel important areas were identified that include key population centers, linkages, expansion areas, and climate change extension areas (see Mohave ground squirrel BGOs in Appendix C).

Under the Preferred Alternative, impacts to key population centers for Mohave ground squirrel would occur primarily in the West Mojave – 2 ecoregion subunit in the North of Edwards area. Impacts to Mohave ground squirrel linkages under the Preferred Alternative would occur only in the West Mojave – 1 and Owens – 1 ecoregion subunits west of China Lake. Impacts to Mohave ground squirrel expansion areas would occur primarily in the West Mojave – 2 ecoregion subunit and impacts to the climate change extension areas would occur only in a limited area of the Owens – 1 ecoregion subunit. The SAA in the West Mojave – 3 ecoregion subunit in the Preferred Alternative is located in Mohave ground squirrel important areas, including 19,000 acres of Mohave ground squirrel key population centers and 7,000 acres of linkage habitat.

Table IV.7-49 provides an impact analysis for these Mohave ground squirrel important areas. Approximately 3,000 acres of key population center and linkage habitat would be impacted under the Preferred Alternative. The CMAs for Mohave ground squirrel require protocol surveys in population centers and linkages, as well as provide other measures to offset the loss of habitat for Mohave ground squirrel (AM-DFA-ICS-36 through AM-DFA-ICS-43).

Approximately 4,000 acres of impact would occur in expansion areas and 200 acres of impact would occur in climate change extension areas. The CMAs would prohibit impacts that affect the viability of linkages. Compensation CMAs would be required for impacts to Mohave ground squirrel (COMP-1 and COMP-2).

Table IV.7-49
Plan-Wide Impact Analysis for Mohave Ground Squirrel Important Areas – Preferred Alternative

Mohave Ground Squirrel Important Area Type	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Key Population Center	507,000	900	100	100	400	2,000
Linkage	386,000	800	-	500	200	1,000
Expansion Area	552,000	3,000	200	400	200	4,000
Climate Change Extension	224,000	-	-	-	100	200
Total	**1,669,000**	**4,700**	**300**	**1,000**	**900**	**7,200**

1 Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
2 Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table

Dune Covered Species[1]

Dune Covered Species include Mojave fringe-toed lizard. Although Table IV.7-47 shows impacts to Mojave fringe-toed lizard, impacts to the primary habitat areas used by these species would be avoided through the CMAs that require avoidance of and setbacks from dunes (AM-DFA-DUNE-1 through 3). Additionally, the Plan-wide and landscape-level avoidance and minimization CMAs (AM-PW-1 through 17 and AM-LL-3) would further avoid and minimize impacts to dune Covered Species. Compensation CMAs would offset habitat loss for dune Covered Species.

1 Flat-tailed horned lizard and plant Covered Species are also known to be associated with dunes but these species are addressed separately.

Riparian and Wetland Covered Species[2]

Covered Species associated with riparian and wetland habitats include Tehachapi slender salamander, California black rail, Gila woodpecker, least Bell's vireo, southwestern willow flycatcher, tricolored blackbird, western yellow-billed cuckoo, Yuma clapper rail, Mohave tui chub, Owens pupfish, and Owens tui chub. Although Table IV.7-47 shows impacts to suitable habitat for some of these riparian and wetland Covered Species, impacts to the primary habitat areas used by these species would be avoided through the CMAs that require avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1 through 9). Additionally, the Plan-wide and landscape-level avoidance and minimization CMAs (AM-PW-1 through 17 and AM-LL-2) would further avoid and minimize impacts to riparian and wetland Covered Species. Compensation CMAs would offset habitat loss for these species.

Approximately 6,000 acres of USFWS-designated critical habitat for southwestern willow flycatcher occurs in the Plan Area (excluding military, Open OHV Areas, and tribal lands). These critical habitat units include Amargosa River, Mojave River, and Willow Creek. The Preferred Alternative would not result in any impacts to critical habitat for southwestern willow flycatcher.

Approximately 800 acres of USFWS-designated critical habitat for desert pupfish occurs in the Plan Area (excluding military, Open OHV Areas, and tribal lands). These critical habitat units include Carrizo Wash, Fish Creek Wash, and San Felipe Creek. The Preferred Alternative would not result in any impacts to critical habitat for desert pupfish.

The USFWS proposed to designate yellow-billed cuckoo critical habitat on August 15, 2014 at the time the DRECP Draft EIR/EIS was going to print. As such, the proposed yellow-billed cuckoo critical habitat was not addressed in the Draft EIR/EIS, but will be addressed in the Final EIR/EIS.

Covered Species associated with Agricultural Lands[3]

Covered Species associated with agricultural lands include burrowing owl, greater sandhill crane, mountain plover, Swainson's hawk, and desert pupfish. As shown in Table IV.7-47, impacts to Covered Species associated with agricultural lands would occur, primarily in the Imperial Valley, Palo Verde Valley, and Antelope Valley. Specific surveys, setbacks, and other CMAs have been developed to avoid and minimize impacts of Covered

2 Some of the riparian and wetland Covered Species discussed here also use other non-wetland and non-riparian natural communities.

3 Some of the Covered Species discussed here as associated with agricultural lands also use non-agricultural lands.

Activities on these species (AM-DFA-AG-1 through 7). Compensation CMAs would offset habitat loss for these species.

Bat Covered Species

Bat Covered Species include California leaf-nosed bat, pallid bat, and Townsend's big-eared bat. As shown in Table IV.7-47, impacts to suitable habitat for bat Covered Species would occur throughout the Plan Area; however, impacts to roost sites and areas around roost sites would be avoided and minimized through the CMAs specific to bat species (AM-DFA-BAT-1). Additionally, the Plan-wide avoidance and minimization CMAs (AM-PW-1 through 17) would further avoid and minimize impacts to bat Covered Species. Compensation CMAs would offset habitat loss for these species.

Plant Covered Species

Plant Covered Species include alkali mariposa-lily, Bakersfield cactus, Barstow woolly sunflower, Desert cymopterus, Little San Bernardino Mountains linanthus, Mojave monkeyflower, Mojave tarplant, Owens Valley checkerbloom, Parish's daisy, and Triple-ribbed milk-vetch. As shown in Table IV.7-47, the Preferred Alternative would result in impact to suitable habitat for these species; however, the CMAs require surveys for plant Covered Species for all Covered Activities, and the CMAs requiring avoidance of and setbacks from occupied habitat (AM-DFA-PLANT-1 through AM-DFA-PLANT-3) would avoid the direct loss of habitat occupied by these species. Compensation CMAs would offset habitat loss for the plant Covered Species.

Approximately 2,000 acres of USFWS-designated critical habitat for Parish's daisy occurs in the Plan Area (excluding military, Open OHV Areas, and tribal lands). The critical habitat unit is the Northeast Slope. The Preferred Alternative would not result in any impacts to critical habitat for Parish's Daisy.

To avoid and minimize the potential loss of Covered Species from Covered Activities, a range of species-specific CMAs have been developed and are highlighted below:

- CMAs require habitat assessments for all Covered Activities and pre-construction surveys for Tehachapi slender salamander, Mojave fringe-toed lizard, desert tortoise, flat-tailed horned lizard, riparian and wetland bird Covered Species, burrowing owl, greater sandhill crane, Swainson's hawk, Bendire's thrasher, golden eagle, Mohave ground squirrel, bat Covered Species, and plant Covered Species (see Section II.3.1.2.5.4 and Section II.3.1.2.5.5).
- Setbacks from individual species would be required from active nests of Bendire's thrasher, California condor, Gila woodpecker, and golden eagle.

- Covered Activities and other development in areas that potentially affect the amount of sand entering or transported within Aeolian transport corridors will be designed and operated to maintain the quality and function of Aeolian transport corridors and sand deposition zones (unless related to maintenance of existing facilities), avoid a reduction in sand-bearing sediments within the Aeolian system, and minimize mortality to Covered Species (AM-LL-3).
- In addition, a bird and bat use and mortality monitoring program will be implemented during operations using current protocols and best procedures available at time of monitoring. Covered Activities that are likely to impact bird and bat Covered Species during operation will develop and implement project-specific Bird and Bat Covered Species Operational Actions that meet the approval of the appropriate DRECP Coordination Group (AM-LL-4).
- Covered Activities will include appropriate design features using the most current information from the Flat-tailed Horned Lizard Rangewide Management Strategy (RMS) and RMS Interagency Coordinating Committee (ICC) to reduce mortality (AM-DFA-ICS-15).
- If Bendire's thrasher are present, CMAs require biological monitoring to ensure that individuals are not directly affected by operations (i.e., mortality or injury, direct impacts on nest, eggs, or fledglings).
- For Covered Activities where ongoing take of eagles is anticipated, and take of eagles will be authorized under DRECP, federal regulations require that any authorized take must be unavoidable after the implementation of advanced conservation practices (ACPs) (AM-DFA-ICS-29). ACPs are "scientifically supportable measures" approved by the USFWS and represent the best available techniques to reduce eagle disturbance and ongoing mortalities to a level where remaining take is unavoidable" (50 CFR 22.3).
- CMAs also require monitoring and enforcement of vehicular restrictions and travel off designated routes to prevent mortality to Covered Species associated with dunes (AM-RES-BLM-DUNE-2).

Indirect and Terrestrial Operational Impact Analysis

Siting, construction, and operational Covered Activities could result in the potential disturbance, injury, and mortality of listed and sensitive wildlife from noise, predator avoidance behavior, as well as light and glare. The degree to which these factors contribute to the disturbance of sensitive wildlife corresponds to the distribution of Covered Activities in the Plan Area that would result in noise, predator avoidance behavior, or light and glare. As described in Section IV.7.2.1, the extent of some of these effects may exist at or beyond the source of these effects, the project footprint, or the project area depending on the type

of effect and other environmental considerations. As such, the adverse effects caused by these factors would correspond to the overlap between the location of sensitive wildlife, represented by the Covered Species models, and the likely distribution of Covered Activities across subareas.

Under the Preferred Alternative, approximately 11% of the total Plan Area would be DFAs that allow renewable energy development. Based on the planned renewable energy generation and transmission under the Preferred Alternative (a total of 177,000 acres of impact), the creation of noise, predator avoidance behavior, as well as light and glare would collectively result in the terrestrial operational impacts shown in Table IV.7-46. These impacts would mostly occur in the Imperial Borrego Valley, West Mojave and Eastern Slopes, Cadiz Valley and Chocolate Mountains, and the Pinto Lucerne Valley and Eastern Slopes subareas. As a result, these subareas would have the greatest potential to create noise, predator avoidance behavior, and light and glare resulting in disturbance of sensitive wildlife.

Noise

Noise caused by mechanical equipment, vehicle usage, and human activities during siting, construction, and operations can cause physical damage to wildlife, such as hearing loss as well as behavioral changes in habitat use, activity patterns, reproduction, and foraging. Birds during the nesting seasons are expected to be particularly sensitive to noise effects from the siting, construction, and operation of renewable energy facilities. For bird Covered Species the Imperial Borrego Valley subarea and to a lesser extent in the West Mojave and Eastern Slopes are the subarea primarily affected and containing most of the total Plan-wide impacts to bird Covered Species habitat. Smaller mammals, such as the Mohave ground squirrel, and reptiles, such the Mojave fringe-toed lizard and flat-tailed horned lizard, could be adversely affected by intense noise (and related vibration that could collapse burrows), and potentially subject to increased predation if noise affects their ability to detect predators. Effects on the modeled habitat for these Covered Species mostly occurs in the Cadiz Valley and Chocolate Mountains subarea, and to a lesser extent in the West Mojave and Eastern Slopes and the Imperial Borrego Valley subareas. As such, the disturbance of wildlife from noise would predominantly occur in the West Mojave and Eastern Slopes subarea and to a lesser extent in the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas.

The disturbance and injury of wildlife from noise-related effects would also be reduced through the implementation of avoidance and minimization CMAs under the Preferred Alternative. The CMA AM-PW-13 would reduce noise generated from Covered Activities using standard practices throughout the entire Plan Area. Additionally, various CMAs would avoid and setback Covered Activities from noise-sensitive wildlife including

seasonal setbacks for nesting birds; setbacks from riparian and wetland habitat benefitting birds, amphibians, and small mammals; and avoidance of Mohave ground squirrels during operations (AM-DFA-RIPWET-1, AM-DFA-RIPWET-5, and AM-DFA-ICS-36). Therefore, potential disturbance of wildlife from noise during siting, construction, and operations would be minimized by these measures.

Predator Avoidance Behavior

Predator avoidance behavior can occur in some wildlife in response to human activities during operation and maintenance. Predator avoidance behavior can lead to increased physiological stress, reduced suitable foraging habitat, and can affect reproduction. Different wildlife species may have varying sensitivities to predator avoidance behavior and may experience different magnitudes of responses to Covered Activities. Desert bighorn sheep use visual cues to assess and escape predators and may not utilize foraging habitat or water sources in proximity to Covered Activities. Other species, such as birds, may experience behavioral changes that reduce foraging opportunities or lead to avoidance of suitable foraging habitat. These wildlife species are spread throughout the Plan Area; however, the greatest amount of terrestrial operational impacts would be located in the Imperial Borrego Valley, Cadiz Valley and Imperial Borrego Valley, and West Mojave and Eastern Slopes subareas. The Pinto Lucerne Valley and Eastern Slopes would also experience impacts from predator avoidance behavior, but to a lesser extent.

Under the Preferred Alternative, avoidance and minimization CMAs for siting Covered Activities away from sensitive wildlife habitat would be implemented for riparian and wetland habitat, wildlife species that inhabit agricultural lands, and for particular species such as the Mohave ground squirrel (AM-DFA-RIPWET-1, AM-DFA-RIPWET-5, AM-DFA-AG-2, and AM-DFA-ICS-36). Additional CMAs would inform workers of actions that could potentially induce predator avoidance behavior and restrict activities that could disturb wildlife and their access to water and foraging habitat (AM-PW-5, AM-PW-13, AM-RES-OL-DUNE-2, and AM-RES-RL-ICS-14). The potential disturbance of wildlife from predator avoidance behavior caused by siting, construction, and operational Covered Activities would be minimized by these measures.

Light and Glare

Light and glare are created by Covered Activity development, which involves both light for security and to avoid aviation collisions and glare from reflective surfaces. Exposure of wildlife to light and glare can alter wildlife behavior including foraging, migration, and breeding. Solar projects would produce increased levels of glare due to the large amount of reflective panel or heliostat surfaces and would have greater effects on wildlife than other renewable energy technologies. Potential adverse effects associated with light and glare

from solar projects, including solar flux impacts to wildlife, including insects, and bird/bat collisions from the lake effect (polarized light pollution) are analyzed in BR-9.

As described above, based on the planned renewable energy generation and transmission under the Preferred Alternative, terrestrial operational impacts would mostly occur in the Imperial Borrego Valley, West Mojave and Eastern Slopes, and Cadiz Valley and Chocolate Mountains subareas. Similarly, impacts from solar projects throughout the Plan Area would primarily occur in the Imperial Borrego Valley, West Mojave and Eastern Slopes, and Cadiz Valley and Chocolate Mountains subareas.

Lighting can act through various biological mechanisms and can result in greatly different adverse effects to individual species. Diurnal predators, such as bats and insectivorous birds may exploit night lighting that increases prey detectability, while nocturnal prey species may reduce their foraging activity in lighted areas. Impacts to modeled habitat for bats from Covered Activities would mainly be located in the West Mojave and Eastern Slopes, Cadiz Valley and Chocolate Mountains, and Imperial Borrego Valley subareas. Migratory birds that fly during the night may be attracted to aviation safety lighting on high structures such as met towers and turbines and become reluctant to fly into the dark once attracted to the lighted area. For bird Covered Species the Imperial Borrego Valley and West Mojave and Eastern Slopes are the subareas primarily affected, containing most of the total Plan-wide impacts to bird Covered Species habitat. Therefore, considering the distribution of potential renewable energy development and impacts on modeled habitat for species sensitive from light and glare the largest magnitude of wildlife disturbance is expected to occur in the West Mojave and Eastern Slopes, Cadiz Valley and Chocolate Mountains, as well as the Imperial Borrego Valley subareas.

The Preferred Alternative would implement avoidance and minimization CMAs specifically intended to reduce effects of lighting and glare including AM-PW-14, which would implement standard practices for shielding and reducing the use of lights, as well as AM-DFA-RIPWET-4, which specifically restricts lighting within one mile of riparian or wetland vegetation. Furthermore, the appropriate siting and design of Covered Activities away from sensitive wildlife habitat would reduce disturbance from lighting and glare. Under the Preferred Alternative, avoidance and minimization CMAs for siting Covered Activities away from wildlife that would be sensitive to the adverse effects of lighting and glare would be implemented for riparian and wetland habitat, wildlife species that inhabit agricultural lands, and for smaller mammals (AM-DFA-RIPWET-1, AM-DFA-RIPWET-5, and AM-DFA-AG-2). These measures would minimize potential disturbance of wildlife from lighting and glare.

Non-Covered Species Impact Analysis

Detailed habitat models were not developed for all special-status species not covered by the DRECP (Non-Covered Species) identified in Volume III, Chapter III.7, Section III.7.6.4, Table III.7-57. Alternatively, impacts to most Non-Covered Species were determined by evaluating the impacts to all natural communities associated with a given species using the methodology described in IV.1.4. Some of the Non-Covered Species are highly endemic, and estimates of their range/scale/size of their habitat was provided by expert assessment, instead of natural community modelling which overestimated range and potential impacts by orders of magnitude. The links between Non-Covered Species and associated natural communities (Table III.7-57) were derived using: (1) the actual natural communities mapped (as described in Section III.7.4, and identified on Figures III.7-3 through III.7-13) at the locations of the species' occurrences (CDFW 2013), and (2) habitat requirements for the species as described in the Baseline Biology Report (Appendix Q), and the California Wildlife Habitat Relationships species' descriptions and range maps (Zeiner et al. 1988–1990). If a discrepancy was found, such as a known riparian obligate species occurring within an upland habitat community, it was assumed that the natural community mapping was at a scale that did not capture the smaller riparian habitat. In cases such as this, the mapped natural community identified through GIS analysis was replaced in Table III.7-57 (see Section III.7.6.4.1) with a general habitat description as described in DRECP habitat models, if available, and range maps presented by CDFW's CWHR Program range maps (Zeiner et al. 1988–1990). An example is habitat for the California red-legged frog which in Table III.7-57 (see Section III.7.6.4.1) is shown as Riparian/Wetland Communities, as these localities overlapped with upland natural community types; while these upland communities may reflect habitat adjacent to the California red-legged frog habitat, the riparian obligate nature of this species allowed for a correction of its associated natural community.

Table IV.7-50 provides a cross-reference of natural communities shared between primary Covered and Non-Covered Species. There are a number of species-specific CMAs for Covered Species and natural communities that would be expected to also minimize and avoid impacts to the Non-Covered Species that may co-occur, e.g., the Non-Covered yellow-breasted chat often occurs within the same riparian habitat as the covered southwestern willow flycatcher. Therefore, conservation measures implemented for southwestern willow flycatcher would often benefit the yellow-breasted chat. Although the modeled habitat for the Covered Species does not always directly overlap the range of Non-Covered Species requiring similar habitat, this method provides a general additional guide for determining impacts and accounting for conservation measures.

Table IV.7-50
Cross-Reference Between Natural Communities for Primary Associated Covered Species and Non-Covered

General Communities	Natural Communities	Available Lands (acres)	Primary Associated Non-Covered Species	Primary Associated Covered Species
California Forest and Woodland/ Desert Conifer Woodland	Californian Broadleaf Forest and Woodland Californian Montane Conifer Forest Great Basin Pinyon-Juniper Woodland	72,000 78,000 287,000	Coast horned lizard, grey vireo, loggerhead shrike, yellow warbler, American badger, bighorn sheep, fringed myotis, hoary bat, long-eared myotis, pocketed free-tailed bat, spotted bat, Tehachapi pocket mouse, western mastiff bat, western small-footed myotis, Amargosa beardtongue, Charlotte's phacelia, creamy blazing star, Cushenbury buckwheat, Cushenbury milk-vetch, Cushenbury oxytheca, Kern buckwheat, Piute Mountains jewel-flower, purple-nerve cymopterus, San Bernardino Mountains dudleya, short-joint beavertail cactus, Spanish needle onion, Tracy's eriastrum, Cushenbury buckwheat	Tehachapi Slender Salamander, Golden Eagle, California Condor, Pallid Bat, California Leaf-nosed Bat, Townsend's Big-eared Bat, Parish's Daisy, Bakersfield cactus
Desert Scrub/ Chaparral Communities	Arizonan upland Sonoran Desert scrub Intermontane Deep or Well-Drained Soil Scrub Intermontane Seral Shrubland Inter-Mountain Dry Shrubland and Grassland Intermountain Mountain Big Sagebrush Shrubland and	57,000 106,000 74,000 437,000 76,000	Arroyo toad, banded gila monster, Coast horned lizard, Colorado Desert fringe-toed lizard, Couch's spadefoot, rosy boa, bald eagle, bank swallow, Crissal thrasher, Ferruginous hawk, gilded flicker, grey vireo, Le Conte's thrasher, loggerhead shrike, long-eared owl, Lucy's warbler, northern harrier, yellow warbler, American badger, Arizona myotis, big free-tailed bat, bighorn sheep, cave myotis, fringed myotis, hoary bat, long-eared myotis, Palm Springs pocket mouse, pocketed free-tailed bat, spotted bat, Tehachapi pocket mouse,	Golden Eagle, California Condor, Bendire's Thrasher, Burrowing Owl, Pallid Bat, California Leaf-nosed Bat, Townsend's Big-eared Bat, Desert Kit Fox, Mohave Ground Squirrel, Burro Deer, Desert Tortoise, Flat-tailed Horned Lizard, Mojave Fringe-toed Lizard,

Table IV.7-50
Cross-Reference Between Natural Communities for Primary Associated Covered Species and Non-Covered

General Communities	Natural Communities	Available Lands (acres)	Primary Associated Non-Covered Species	Primary Associated Covered Species
	steppe	10,859,000	western mastiff bat, western small-footed myotis, western yellow bat, yellow-eared pocket mouse, Yuma myotis, Algodones Dunes sunflower, Ash Meadows gum plant, Amargosa beardtongue, bare- stem larkspur, Charlotte's phacelia, Cima milk-vetch, Coachella Valley milk-vetch, creamy blazing star, Cushenbury buckwheat, Cushenbury milk-vetch, Cushenbury oxytheca, desert pincushion, Emory's crucifixion-thorn, flat-seeded spurge, forked buckwheat, Harwood's eriastrum, Harwood's milkvetch, Inyo County star-tulip, Kelso Creek monkeyflower, Kern buckwheat, Las Animas colubrina, Lane Mountain Milk-Vetch, Mojave Desert plum, Mojave milkweed, Munz's Cholla, nine-awned pappus grass, Orcutt's woody aster, Orocopia sage, Parish's club cholla, Pierson's milk-vetch, pink fairy-duster, Piute Mountains jewel-flower, purple-nerve cymopterus, Red Rock poppy, Red Rock tarplant, Robinson's monardella, Rusby's desert-mallow, sand food, Sodaville milk-vetch, short-joint beavertail cactus, Spanish needle onion, Thorne's buckwheat, Tracy's eriastrum, Utah beardtongue, white bear poppy, White-margined beardstongue, Wiggin's croton,	Triple-Ribbed Milk-Vetch, Alkali mariposa-lily, Desert Cymopterus, Mojave Tarplant, Little San Bernardino Mountains Linanthus, Mojave Monkeyflower, Bakersfield Cactus, Parish's Daisy, Barstow woolly sunflower, Owens Valley checkerbloom
	Lower bajada and Fan Mojavean–Sonoran Desert Scrub	1,333,000		
	Mojave and Great Basin Upper Bajada and Toeslope	279,000		
	Shadescale – Saltbush Cool Semi-Desert Scrub	100		
	Southern Great Basin Semi-Desert Grassland	4,000		
	Californian Mesic Chaparral	1,000		
	Californian Pre-Montane Chaparral	24,000		
	Californian Xeric Chaparral	1,000		
	Central and South Coastal California Seral Scrub	54,000		
	Central and South Coastal Californian coastal sage scrub	24,000		
	Western Mojave and Western Sonoran			

Table IV.7-50
Cross-Reference Between Natural Communities for Primary Associated Covered Species and Non-Covered

General Communities	Natural Communities	Available Lands (acres)	Primary Associated Non-Covered Species	Primary Associated Covered Species
	Desert Borderland Chaparral		Flat-seeded spurge, Parish's phacelia, Parish's alkali grass	
Dunes/Desert Outcrop and Badlands	North American Warm Desert Bedrock Cliff and Outcrop North American Warm Desert Dunes and Sand Flats	1,613,000 230,000	Banded gila monster, barefoot gecko, Coast horned lizard, Colorado Desert fringe-toed lizard, Couch's spadefoot, rosy boa, bald eagle, bank swallow, Le Conte's thrasher, loggerhead shrike, long-eared owl, northern harrier, Amargosa vole, big free-tailed bat, bighorn sheep, cave myotis, bat, spotted bat, western mastiff bat, Yuma myotis, Algodones Dunes sunflower, Ash Meadows gum plant, Amargosa beardtongue, Amargosa niterwort, Charlotte's phacelia, Cima milk-vetch, Coachella Valley milk-vetch, creamy blazing star, desert pincushion, Emory's crucifixion-thorn, flat-seeded spurge, forked buckwheat, Harwood's eriastrum, Harwood's milkvetch, Inyo County star-tulip, Las Animas colubrina, Mojave Desert plum, Mojave milkweed, nine-awned pappus grass, Orcutt's woody aster, Orocopia sage, Palmer's jackass clover, Parish's club cholla, Pierson's milk-vetch, pink fairy-duster, purple-nerve cymopterus, Red Rock poppy, Red Rock tarplant, Robinson's monardella, Rusby's desert-mallow, sand food, Spanish needle onion, Thorne's buckwheat, Utah beardtongue, white bear poppy, Wiggin's	flat-tailed horned lizard, Mojave fringe-toed lizard, Golden Eagle, California Condor, Pallid Bat, California Leaf-nosed Bat, Townsend's Big-eared Bat, Desert Kit Fox

Table IV.7-50
Cross-Reference Between Natural Communities for Primary Associated Covered Species and Non-Covered

General Communities	Natural Communities	Available Lands (acres)	Primary Associated Non-Covered Species	Primary Associated Covered Species
			croton, Palmer's jackass clover, white-margined beardtongue, flat-seeded spurge	
Grassland	California Annual and Perennial Grassland California Annual Forb/Grass Vegetation	230,000 8,000	Coast horned lizard, American peregrine falcon, bank swallow, Ferruginous hawk, long-eared owl, northern harrier, white-tailed kite, Amargosa vole, American badger, spotted bat, Cushenbury milk-vetch, Cushenbury oxytheca, short-joint beavertail cactus	Golden Eagle, Burrowing Owl, Mountain Plover, Bendire's Thrasher, Desert Kit Fox
Riparian/ Wetlands	Madrean Warm Semi-Desert Wash Woodland/ Scrub Mojavean Semi-Desert Wash Scrub Riparian Sonoran-Coloradan Semi-Desert Wash Woodland/ Scrub Southwestern North American Riparian Evergreen and Deciduous Woodland Southwestern North American Riparian/Wash Scrub	697,000 30,000 1,000 191,000 6,000 66,000 4,000	Arroyo toad, California red-legged frog, Coast horned lizard, Couch's spadefoot, Western pond turtle, American peregrine falcon, Arizona Bell's vireo, bald eagle, bank swallow, Crissal thrasher, gilded flicker, elf owl, Inyo California towhee, loggerhead shrike, long-eared owl, Lucy's warbler, northern harrier, redhead, vermillion flycatcher, white-tailed kite, yellow-breasted chat, yellow-headed blackbird, yellow warbler, Amargosa vole, Mojave River vole, Arizona myotis, cave myotis, fringed myotis, hoary bat, long-eared myotispocketed free-tailed bat, spotted bat, western mastiff bat, western yellow bat, Yuma myotis, Ash Meadows gum plant, Inyo County star-tulip, Parish's alkali grass, Parish's phacelia, Amargosa pupfish, Amargosa speckled dace, Amargosa spring snails	California black rail, Gila woodpecker, Yuma clapper rail, least Bell's vireo, Southwestern Willow Flycatcher, Western Yellow-billed Cuckoo, Pallid Bat, California Leaf-nosed Bat, Townsend's Big-eared Bat, burro deer, Tehachapi slender salamander, Desert pupfish, Mohave tui chub, Owens pupfish, Owens tui chub, Owens Valley checkerbloom

Table IV.7-50
Cross-Reference Between Natural Communities for Primary Associated Covered Species and Non-Covered

General Communities	Natural Communities	Available Lands (acres)	Primary Associated Non-Covered Species	Primary Associated Covered Species
	Arid West Freshwater Emergent Marsh	400		
	Californian Warm Temperate Marsh/Seep	310,000		
	North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	78,000		
	Playa	261,000		
	Southwestern North American Salt Basin and High Marsh	8,000		
	Wetland			
Agriculture/ Rural Land Cover	N/A	718,000	American peregrine falcon, Bank swallow, loggerhead shrike, long-eared owl, northern harrier, redhead, yellow-headed blackbird, yellow warbler, Arizona myotis, hoary bat, Tehachapi pocket mouse, western mastiff bat, western yellow bat	burrowing owl, mountain plover, greater sandhill crane, and Swainson's hawk

Table IV.7-51 provides an estimation of the impacts to natural communities associated with Non-Covered Species. While estimation of impacts to natural communities likely overestimates the potential impacts to Non-Covered Species habitats, it provides a general range of level of impact.

Impacts to the dune community, riparian communities, arid west freshwater emergent marsh, and Californian warm temperate marsh/seep would be avoided through implementation of CMAs, so impacts to potential habitat for each of these species is likely

greater than would actually occur. For some species, impacts would be minimized through avoidance of the specific natural communities required for those species, e.g., dune-, spring-, or cave-restricted invertebrates, or riparian-obligate bird or amphibian species. The total potential impact to natural communities and habitat across all technology types before application of CMAs is less than 1%, with the exception of grasslands at approximately 2.5% and agricultural/rural land cover at approximately 8% (see Table IV.7-51).

USFWS-designated critical habitat occurs within the Plan Area (excluding military, Open OHV Areas, and tribal lands) for the following Non-Covered Species:

- Approximately 1,000 acres for Amargosa nitrophila
- Approximately 4,000 acres for the Amargosa vole
- Approximately 4,000 acres for the Arroyo Toad
- Approximately 300 acres for the Ash Meadows gumplant
- Approximately 600 acres for the Cushenbury buckwheat
- Approximately 1,000 acres for the Cushenbury milk-vetch
- Approximately 100 acres for the Cushenbury oxytheca
- Approximately 14,000 acres for the Lane Mountain milk-vetch
- Approximately 3,400 acres for the Pierson's milk-vetch
- Approximately 47,000 acres for the Peninsular bighorn sheep

Under the Preferred Alternative, impacts to approximately 40 acres of Lane Mountain milk-vetch critical habitat would have the potential to occur from transmission. This calculation of impacts from transmission is derived from the transmission corridors overlapped with designated critical habitat, thus resulting is an overestimation of actual ground disturbance.

The results of impacts on Non-Covered Species from the creation of noise, predator avoidance behavior, and light and glare would be similar to those described for the Covered Species.

Table IV.7-51
Plan-Wide Impact Analysis for Natural Communities and Associated Non-Covered Species – Preferred Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
California forest and woodland/ Desert conifer woodlands	Coast horned lizard, grey vireo, loggerhead shrike, yellow warbler, American badger, bighorn sheep, fringed myotis, hoary bat, long-eared myotis, pocketed free-tailed bat, spotted bat, Tehachapi pocket mouse, western mastiff bat, western small-footed myotis, Amargosa beardtongue, Charlotte's phacelia, creamy blazing star, Cushenbury buckwheat, Cushenbury milk-vetch, Cushenbury oxytheca, Kern buckwheat, Piute Mountains jewel-flower, purple-nerve cymopterus, San Bernardino Mountains dudleya, short-joint beavertail cactus, Spanish needle onion, Tracy's eriastrum, Cushenbury buckwheat	437,000	1,100	100	0	200	1,400	0.3%
Desert Scrub/ Chaparral Communities	Arroyo toad, banded gila monster, Coast horned lizard, Colorado Desert fringe-toed lizard, Couch's spadefoot, rosy boa, bald eagle, bank swallow, Crissal thrasher, Ferruginous hawk, gilded flicker, grey vireo, Le Conte's thrasher, loggerhead shrike, long-eared owl,	13,329,000	61,000	7,000	7,000	18,000	93,000	0.7%

Table IV.7-51
Plan-Wide Impact Analysis for Natural Communities and Associated Non-Covered Species – Preferred Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	Lucy's warbler, northern harrier, yellow warbler, American badger, Arizona myotis, big free-tailed bat, bighorn sheep, cave myotis, fringed myotis, hoary bat, long-eared myotis, Palm Springs pocket mouse, pocketed free-tailed bat, spotted bat, Tehachapi pocket mouse, western mastiff bat, western small-footed myotis, western yellow bat, yellow-eared pocket mouse, Yuma myotis, Algodones Dunes sunflower, Ash Meadows gum plant, Amargosa beardtongue, bare- stem larkspur, Charlotte's phacelia, Cima milk-vetch, Coachella Valley milk-vetch, creamy blazing star, Cushenbury buckwheat, Cushenbury milk-vetch, Cushenbury oxytheca, desert pincushion, Emory's crucifixion-thorn, flat-seeded spurge, forked buckwheat, Harwood's eriastrum, Harwood's milkvetch, Inyo County star-tulip, Kelso Creek monkeyflower, Kern buckwheat, Las Animas colubrina, Lane Mountain Milk-Vetch,							

Table IV.7-51
Plan-Wide Impact Analysis for Natural Communities and Associated Non-Covered Species – Preferred Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	Mojave Desert plum, Mojave milkweed, Munz's Cholla, nine-awned pappus grass, Orcutt's woody aster, Orocopia sage, Parish's club cholla, Pierson's milk-vetch, pink fairy-duster, Piute Mountains jewel-flower, purple-nerve cymopterus, Red Rock poppy, Red Rock tarplant, Robinson's monardella, Rusby's desert-mallow, sand food, Sodaville milk-vetch, short-joint beavertail cactus, Spanish needle onion, Thorne's buckwheat, Tracy's eriastrum, Utah beardtongue, white bear poppy, White-margined beardstongue, Wiggin's croton, Flat-seeded spurge, Parish's phacelia, Parish's alkali grass							
Dunes[3]/ Desert Outcrop and Badlands	Banded gila monster, barefoot gecko, Coast horned lizard, Colorado Desert fringe-toed lizard, Couch's spadefoot, rosy boa, bald eagle, bank swallow, Le Conte's thrasher, loggerhead shrike, long-eared owl, northern harrier, Amargosa vole, big free-tailed bat,	1,843,000	5,000	700	600	3,000	10,000	0.5%

Table IV.7-51
Plan-Wide Impact Analysis for Natural Communities and Associated Non-Covered Species – Preferred Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	bighorn sheep, cave myotis, bat, spotted bat, western mastiff bat, Yuma myotis, Algodones Dunes sunflower, Ash Meadows gum plant, Amargosa beardtongue, Amargosa niterwort, Charlotte's phacelia, Cima milk-vetch, Coachella Valley milk-vetch, creamy blazing star, desert pincushion, Emory's crucifixion-thorn, flat-seeded spurge, forked buckwheat, Harwood's eriastrum, Harwood's milkvetch, Inyo County star-tulip, Las Animas colubrina, Mojave Desert plum, Mojave milkweed, nine-awned pappus grass, Orcutt's woody aster, Orocopia sage, Palmer's jackass clover, Parish's club cholla, Pierson's milk-vetch, pink fairy-duster, purple-nerve cymopterus, Red Rock poppy, Red Rock tarplant, Robinson's monardella, Rusby's desert-mallow, sand food, Spanish needle onion, Thorne's buckwheat, Utah beardtongue, white bear poppy, Wiggin's croton, Palmer's jackass clover, white-							

Table IV.7-51
Plan-Wide Impact Analysis for Natural Communities and Associated Non-Covered Species – Preferred Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	margined beardtongue, flat-seeded spurge							
Grassland	Coast horned lizard, American peregrine falcon, bank swallow, Ferruginous hawk, long-eared owl, northern harrier, white-tailed kite, Amargosa vole, American badger, spotted bat, Cushenbury milk-vetch, Cushenbury oxytheca, short-joint beavertail cactus	238,000	5,000	300	0	500	6,000	2.5%
Riparian/ Wetlands	Arroyo toad, California red-legged frog, Coast horned lizard, Couch's spadefoot, Western pond turtle, American peregrine falcon, Arizona Bell's vireo, bald eagle, bank swallow, Crissal thrasher, gilded flicker, elf owl, Inyo California towhee, loggerhead shrike, long-eared owl, Lucy's warbler, northern harrier, redhead, vermillion flycatcher, white-tailed kite, yellow-breasted chat, yellow-headed blackbird, yellow warbler, Amargosa vole, Mojave River vole, Arizona myotis, cave myotis, fringed myotis, hoary bat, long-eared myotispocketed	1,652,000	5,000	400	0	400	6,000	0.4%

Table IV.7-51
Plan-Wide Impact Analysis for Natural Communities and Associated Non-Covered Species – Preferred Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	free-tailed bat, spotted bat, western mastiff bat, western yellow bat, Yuma myotis, Ash Meadows gum plant, Inyo County star-tulip, Parish's alkali grass, Parish's phacelia, Amargosa pupfish, Amargosa speckled dace, Amargosa spring snails							
Agriculture/ Rural Land Cover	American peregrine falcon, Bank swallow, loggerhead shrike, long-eared owl, northern harrier, redhead, yellow-headed blackbird, yellow warbler, Arizona myotis, hoary bat, Tehachapi pocket mouse, western mastiff bat, western yellow bat	718,000	36,000	1,000	9,000	9,000	55,000	7.7%

1 Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

2 Solar impacts include ground-mounted distributed generation.

3 Impacts to the dune community, riparian communities, arid west freshwater emergent marsh, and Californian warm temperate marsh/seep would be avoided through implementation of CMAs. Only impacts determined to be unavoidable would occur in these natural communities.

4 This amount assumes the loss of conservation value for all land fragmented by the well fields.

Notes: The natural community classification system is described in Chapter III.7 and follows CDFG 2012. Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Impact BR-5: Siting, construction, decommissioning, and operational activities could result in loss of nesting birds (violation of the federal Migratory Bird Treaty Act and California Fish and Game Code Sections 3503, 3503.5, 3511, and 3513).

Siting, construction, decommissioning, and operations of renewable energy and transmission projects would result in the removal of vegetation and other nesting habitat and cause increased human presence and noise that has the potential to cause the loss of nesting birds, which would be a violation of the federal Migratory Bird Treaty Act and the California Fish and Game Code. The potential loss of nesting birds resulting from these activities would be adverse without application of CMAs. Avoidance and minimization CMAs (AM-PW-4, 13, 14; AM-DFA-RIPWET-1, 3, 5; AM-DFA-AG-1 through 6; AM-DFA-ICS CMAs for bird species) include the season restrictions, survey requirements, and setbacks necessary to avoid and minimize the loss of nesting birds.

Impact BR-6: Siting, construction, decommissioning, and operational activities would adversely affect habitat linkages and wildlife movement corridors, the movement of fish, and native wildlife nursery sites.

The following provides an analysis of the impacts of the development of Covered Activities on habitat linkages and wildlife movement in the Plan Area. Species-specific habitat linkages and wildlife movement areas are a component of analysis conducted under Impact BR-4 above. Suitable habitat for each species includes areas of habitat linkages and wildlife movement. See Impact BR-4 for the impact analysis specific to habitat linkages and wildlife movement for desert tortoise, Mohave ground squirrel, and desert bighorn sheep among others. In addition to the species-specific analysis of impacts to suitable habitat supporting habitat linkages and wildlife movement provided in Impact BR-4, landscape level information on habitat linkages (i.e., Desert Linkage Network) and migratory bird movement are analyzed below.

Desert Linkage Network

The desert linkage network is a comprehensive and detailed habitat connectivity analysis for the California deserts identified "swaths" of habitat of uniform physical conditions that will interact with uncertain climate changes to maintain habitat for species and species' movement (Penrod et al. 2012, as cited in Appendix Q). Figures III.7-26 through III.7-36 in Chapter III.7 of Volume III shows the desert linkage network for the Plan Area and in each ecoregion subarea.

Table IV.7-52 shows the impact analysis for the desert linkage network for the Preferred Alternative. Overall, approximately 28,000 acres of desert linkage network could be adversely impacted in DFAs and transmission corridors in six different subareas.

In the Cadiz Valley and Chocolate Mountains subarea, DFAs are located in the portion of the desert linkage network that connects the Colorado River to the northern part of the McCoy Mountains. There are also DFAs in the linkage network that extends along the McCoy Mountains and connects south to the Palo Verde Mesa. There are also DFAs in the Palen Valley portion of a linkage network that extends south to the northern foothills of the Chocolate Mountains. Numerous generally north-south habitat linkages cross the I-10 corridor area between Desert Center and Blythe in this subarea; DFAs under the Preferred Alternative overlap these habitat linkages and would have the potential to result in adverse impacts to general terrestrial wildlife movement if the development of Covered Activities in these DFAs are not sited and designed to maintain wildlife movement.

In the Imperial Borrego Valley, there are DFAs in the northern portion of the desert linkage network that extends along East Mesa from east of the Imperial Valley north toward the Coachella Canal. DFAs are not located in the desert linkage network corridors elsewhere in the Imperial Borrego Valley subarea. General terrestrial wildlife movement may be affected locally by the development of Covered Activities in these DFAs; however, the siting of DFAs, the reserve design, and the CMAs related to wildlife movement and Covered Species would offset the impacts on general terrestrial wildlife movement.

In the Mojave and Silurian Valley, there are DFAs in the Mojave Valley in a linkage that connects the area around Barstow to the Calico Mountains and east along and south of the Mojave River. In the Owens River Valley, there are DFAs in the desert linkage network connecting the Haiwee Reservoir to Indian Wells. DFAs are not located in the desert linkage network corridors elsewhere in these ecoregion subareas. General terrestrial wildlife movement may be affected locally by the development of Covered Activities in these DFAs; however, the siting of DFAs, the reserve design, and the CMAs related to wildlife movement and Covered Species would offset the impacts on general terrestrial wildlife movement.

In the Pinto Lucerne Valley and Eastern Slopes subarea, there are DFAs in a portion of the desert linkage network that connects the Grapevine Canyon Recreation Lands to the Granite Mountains in Lucerne Valley; however, no DFAs are located in the habitat linkage between the Ord Mountains and the Granite Mountains across the Highway 18 east of Apple Valley. There are also DFAs in the linkage that connects Black Mountain to the Mojave River. DFAs under the Preferred Alternative are sited to avoid and minimize impacts to wildlife movement in this subarea by maintaining movement corridors between the San Bernardino Mountains and the Mojave Desert, including in the Ord Mountains to Granite Mountains linkage area and in the Bighorn Mountain area that connects to Johnson Valley and the Morongo Basin. General terrestrial wildlife movement may be affected locally by the development of Covered Activities in these DFAs; however, the siting of DFAs, the reserve design, and the CMAs related to wildlife movement and Covered Species would offset the impacts on general terrestrial wildlife movement.

In the West Mojave and Eastern Slopes subarea, there are DFAs in the linkage that connects the area around Baldy Mesa along the southern edge of the Plan Area to Helendale; however, in this area, DFAs under the Preferred Alternative are sited to avoid the habitat linkage along the Mojave River and the habitat linkage east of Saddleback Buttes along the Los Angeles and San Bernardino county line. DFAs occur in the Brisbane Valley and in the linkages around Barstow. In the Fremont Valley area around California City, DFAs are located in linkages between Edwards Air Force Base the Tehachapi Mountains that could adversely affect wildlife movement; however, an east-west corridor was maintained without DFAs north of California City across Fremont Valley. General terrestrial wildlife movement may be affected locally by the development of Covered Activities in these DFAs; however, the siting of DFAs, the reserve design, and the CMAs related to wildlife movement and Covered Species would offset the impacts on general terrestrial wildlife movement.

The DRECP Plan-Wide Reserve Design Envelope for the Preferred Alternative was developed, in part, to conserve and avoid impacts to habitat linkages and wildlife movement, including the desert linkage network. The conservation analysis for the desert linkage network is provided under the Impacts of the Reserve Design below. To avoid and minimize impacts to the desert linkage network beyond what is estimated in Table IV.7-52, Covered Activities will be sited and designed to maintain the function of wildlife connectivity in the following linkage and connectivity areas: (1) across Interstate 10 near Wiley's Well Road to connect the Mule and McCoy mountains, (2) across Interstate 10 to connect the Chuckwalla and Palen mountains, (3) across Interstate 10 to connect the Chuckwalla Mountains to the Chuckwalla Valley east of Desert Center, and (4) the confluence of Milpitas Wash and Colorado River floodplain. In addition, the Riparian and Wetland Natural Communities and Covered Species CMAs will contribute to maintaining and promoting habitat connectivity and wildlife movement.

Table IV.7-52
Plan-Wide Impact Analysis for the Desert Linkage Network – Preferred Alternative

Desert Linkage Network by Ecoregion Subarea	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Cadiz Valley and Chocolate Mountains	890,000	8,000	1,000	-	7,000	16,000
Imperial Borrego Valley	156,000	900	-	700	70	2,000
Kingston and Funeral Mountains	174,000	-	-	-	-	-
Mojave and Silurian Valley	507,000	900	-	-	600	2,000
Owens River Valley	19,000	100	-	200	90	400
Panamint Death Valley	206,000	-	-	-	-	-

Table IV.7-52
Plan-Wide Impact Analysis for the Desert Linkage Network – Preferred Alternative

Desert Linkage Network by Ecoregion Subarea	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Pinto Lucerne Valley and Eastern Slopes	291,000	1,000	400	-	1,000	3,000
Piute Valley and Sacramento Mountains	152,000	-	-	-	-	-
Providence and Bullion Mountains	426,000	-	-	-	-	-
West Mojave and Eastern Slopes	860,000	4,000	500	-	300	5,000
Total	**3,682,000**	**15,000**	**2,000**	**900**	**10,000**	**28,000**

1 Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
2 Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Migratory Birds

Migration patterns across the Plan Area are discussed in the typical impacts section (Section IV.7.2.1.3) and quantification of operational impacts to avian and bat species are discussed in Impact BR-9. The following analysis focuses on the anticipated distribution of different technology types in relation to known migratory corridors and migratory resources in each subarea.

In the Preferred Alternative, wind generation is a small proportion of the overall generation mix, and is divided between the West Mojave and Eastern Slopes, Pinto Lucerne Valley and Eastern Slopes and Cadiz Valley and Chocolate Mountain ecoregion subareas. Wind development would mostly occur on the eastern slopes of the Tehachapi Mountains and in the mountainous areas around Lucerne Valley. Key bird migration areas affected would include routes between the Tehachapi and San Bernardino passes, and the dry lakes and wetland refuges on and to the north of Edwards AFB, including the North Mojave dry lakes of China Lake, Koehn Lake, Harper Lake and Searles Lake. Further, direct loss of habitat in Antelope Valley would lead to loss of habitat for wintering birds, including mountain plover and Swainson's hawk. Wind development

would occur in the Cadiz and Chocolate Mountains subarea to the north west of Blythe in the McCoy wash area, and north of the I-10. These areas are adjacent to the Colorado River migratory corridor, and may affect migratory bird movement to and from the Coachella Valley. No wind development in Imperial Borrego Valley ecoregion subarea is anticipated in the Preferred Alternative.

Solar development would be expected throughout the West Mojave and Eastern slopes, Pinto Lucerne Valley and Eastern Slopes, Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley ecoregion subareas. Considerably fewer solar impacts would occur in the Kingston and Funeral Mountains ecoregion subarea. However, adverse effects to isolated stopover patches (e.g. Amargosa Wild and Scenic River) in this subregion could result from altered hydrology resulting from solar development. The Preferred Alternative would result in new solar PV and solar thermal facilities along the I-10 corridor to the west side of the Colorado River, in agricultural lands west of Blythe, and in undisturbed lands in McCoy Valley. Anticipated development would result in a four-fold increase in solar facilities when compared to baseline. This would increase hazards on the migratory linkages for birds between the Colorado River, and the Coachella Valley, and would adversely affect both Covered Species and other migratory birds. Similarly, development in the West Mojave and Eastern Slopes ecoregion subarea would result in a 3.6-fold increase in solar facilities; and Pinto Lucerne Valley and Eastern Slopes ecoregion subarea would be developed where previously it has not been the focus of development. Impacts are likely to occur in DFAs between the Tehachapi and San Bernardino Mountain passes, and dry lakes on Edwards AFB, as well as, the North Mojave dry lakes of China Lake, Koehn Lake, Harper Lake and Searles Lake. Development around the Salton Sea and in the Imperial Valley would be on the southern, western and eastern shores. As discussed in BR-4, impacts from solar development are likely to result in a four-fold increase in solar facilities when compared to baseline impacts. Development would lead to direct loss of foraging habitat for wintering and resident birds in the agricultural lands south of the Salton Sea, and would create facilities across the landscape that mimic open water. Such facilities would adversely affect the behavior of migratory birds by altering typical migration behavior, and would result increased mortality.

Application of CMAs would require projects to be sited and designed to avoid impacts to occupied and suitable habitat for Covered Species, to the maximum extent feasible. Further, siting and construction CMAs require setbacks from riparian and wetland habitats which would minimize direct loss of important migratory bird habitat. Compensation CMAs would offset habitat loss for Covered Species. A bird and bat use and mortality monitoring program would be implemented during operations. Any proposed projects that are likely to impact bird and bat Covered Species during operation would develop and implement project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meet the approval of the appropriate DRECP Coordination Group. The goal of the project-specific Bird and Bat Covered Species Operational Actions would

be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar and geothermal projects. The compensation requirements of AM-LL-4 would be based on ongoing/annual fees and the biological basis for the fee would be determined by the mortality effects as annually measured and monitored according to AM-LL-4. In combination, the application of siting, monitoring, operational and compensation CMAs would minimize impacts to migratory birds.

Impact BR-7: Siting, construction, decommissioning, and operational activities would result in habitat fragmentation and isolation of populations of listed and sensitive plants and wildlife.

The siting, construction, decommissioning, and operation of renewable energy and transmission projects can have the potential to fragment intact and interconnected landscapes resulting in isolated patches of habitat, isolated species populations, reduced gene flow, and remaining habitat that is more exposed to the edge effects of adjacent developments.

The DRECP integrated planning process, as described in Volume II, avoids and minimizes this impact through the siting of DFAs and through the reserve design. Renewable energy development would be restricted to DFAs under the DRECP; therefore, the Preferred Alternative would allow the siting of renewable energy development only within approximately 11% of the available lands in Plan Area (2,024,000 acres of DFAs). Of which, siting and construction of renewable energy development would result in ground disturbance to less than 1% of the available lands in the Plan Area (approximately 177,000 acres).

In conjunction with DFA siting, the DRECP integrated planning process identified Reserve Design Lands within which renewable energy development would be prohibited and conservation would occur. As described below under Impacts of the Reserve Design, the DRECP Plan-Wide Reserve Design Envelope for the Preferred Alternative covers 14,921,000 acres of the Plan Area (79% of the available lands in the Plan Area); therefore, 79% of the available lands in the Plan Area would not have the potential to be affected by fragmentation or population isolation impacts from Covered Activities.

In order to minimize habitat fragmentation and population isolation, DFAs were sited in less intact and more degraded areas. Based on the terrestrial intactness analysis developed for the DRECP area, approximately 87% of the DFAs in the Preferred Alternative are characterized by low or moderately low intactness. Therefore, a majority of the DFAs are in locations with existing habitat fragmentation and population isolation such that development of Covered Activities in these areas would not appreciably contribute to additional effects.

Other measures of fragmentation and population isolation effects include the amount of impacts on environmental gradients. Environmental gradients are spatial shifts in physical and ecological parameters across a landscape. Environmental gradients are influenced by factors such as temperature, precipitation, wind, and solar exposure that vary with physical factors such as elevation, latitude, slope, and aspect. The impact analysis addresses four types of environmental gradients in the Plan Area: elevation, landforms, slope, and aspect.

Elevation: Under the Preferred Alternative, 99% of the impacts from Covered Activities would occur in DFAs below 4,000 feet, including 33% of the impacts occurring below 1,000 feet and 33% between 2,000 and 4,000 feet. As the majority of impacts occur in DFAs below 4,000 feet, impacts will be greater to natural communities that occur below this elevation such as desert scrub natural communities as compared to natural communities that occur at higher elevations. Approximately 95% of the geothermal impacts are at elevations below 1,000 feet, including 61% below sea level. Solar impacts also tend to be concentrated in the lower elevations, with 56% of impacts below 1,000 feet. Wind impacts tend to be at higher elevations, with 61% of impacts at elevations above 2,000 feet. Transmission impacts would be fairly evenly distributed among elevations from sea level to 4,000 feet. Habitat fragmentation, population isolation and gene flow impacts would be concentrated at lower elevations, which has the potential to reduce the potential for successful species range shifts, contractions, and expansions for lower elevation Covered Species and natural communities in response to climate change. As the Preferred Alternative would impact less than 1% of all available land within the Plan Area, any impacts to successful species range shifts, contractions, and expansions will be relatively minor.

Landforms: Landforms in the Plan Area include canyons/deeply incised streams, mountain tops/high ridges, open slopes, and plains. Under the Preferred Alternative, the vast majority (97%) of impacts within DFAs would occur to plains, with these impacts spread across the different impact types, including 70% from solar, 5% from wind, 11% from geothermal, and 14% from transmission. Habitat fragmentation, population isolation and gene flow impacts would be concentrated in plains, which has the potential to reduce the potential for successful species range shifts, contractions, and expansions for Covered Species and natural communities associated with plains in response to climate change. As the Preferred Alternative would impact less than 1% of all available land within the Plan Area, any impacts to successful species range shifts, contractions, and expansions will be relatively minor.

Slope: Under the Preferred Alternative, total impacts within DFAs would be progressively less with increasing slope. The large majority (93%) of impacts would occur on slopes less than 5%, and 99% of impacts would occur on slopes up to 20%. On slopes less than 20%, impacts would be spread across the different impacts types, including 70% from solar, 5%

from wind, 10% from geothermal, and 14% from transmission. Habitat fragmentation, population isolation, and gene flow impacts would be concentrated on slopes less than 20%, which has the potential to reduce the potential for successful species range shifts, contractions, and expansions for Covered Species and natural communities that inhabit lower slopes in response to climate change. As the Preferred Alternative will impact less than 1% of all available land within the Plan Area, any impacts to successful species range shifts, contractions, and expansions will be relatively minor.

Aspect: Under the Preferred Alternative, impacts within DFAs would generally be well distributed among the different aspects Impacts from solar, geothermal, wind, and transmission would have similar distributions across the different aspects compared to overall impacts. By distributing the impacts across all aspects, there is a less potential to interrupt species movement and gene flow for species that occur within any one aspect.

Siting, construction, decommissioning, and operation of the renewable energy and transmission projects has the potential to result in adverse fragmentation and population isolation effects, but these effects are avoided and minimized through the DFAs and reserve design envelope, as well as through the implementation of avoidance and minimization CMAs (AM-LL-1 through AM-LL-4).

Impact BR-8:Construction of generation facilities or transmission lines would result in increased predation of listed and sensitive wildlife species.

Higher predator densities and hence high predation rates are a documented effect of increased human development in the Plan Area. The extent to which Covered Activities contribute to increasing predation through phenomena like predator subsidization is linked to the likely extent of Covered Activities in undisturbed parts of the desert.

Agricultural landscapes in the west Mojave, Lucerne Valley and Imperial Borrego Valley or surrounding Blythe are already disturbed, with relatively high levels of human activity that supplement predators such as ravens. Therefore, covered operational activities in already disturbed rural and agricultural landscapes are would result in a little increase in predation.

However, Covered Activities in undisturbed desert habitat are likely to disproportionately supplement predators, increase predator density and consequently increase predation rates on Covered Species. Of the total 177,000 acres of ground disturbance, the Preferred Alternative would result in 120,000 acres of long-term conversion of natural desert communities with 57,000 acres of impacts (30% of the total ground disturbance) within areas characterized by disturbed land cover types.

All impacts in the Kingston and Funeral Mountains and the Providence and Bullion Mountains ecoregion subareas would be in natural communities and therefore more likely

to increase predation rates on susceptible species like desert tortoise, Mojave fringe-toed lizard, and nesting bird species. Much of the development in the Cadiz and Chocolate Mountains subarea, would be expected in the BLM Solar SEZ area adjacent to the I-10 corridor. This area may already experience increased predator densities as a consequence of human development, the additional impact of further development would therefore be attenuated. However, development in more remote parts to the subarea would likely increase predation.

Wind and solar development in the West Mojave and Eastern Slopes and the Pinto Lucerne Valley and Eastern Slopes subareas may supplement predators in undisturbed environments including parts of the Tehachapi Mountains or areas to the north of Edwards AFB. In these areas, susceptible species would include nestlings and eggs of Covered Species like tricolored blackbird, golden eagle, as well as small amphibians like the Tehachapi slender salamander and mammals like the Mohave ground squirrel. Solar development in these subareas is likely to occur in already disturbed agricultural landscapes around Lancaster or to the west of Edwards AFB. Any development to the North of Edwards is likely to affect Mohave ground squirrel.

Application of a Common Raven Management Plan (AM-PW-6), approved by the appropriate DRECP Coordination Group would reduce project activities that increase predator subsidization. Including, removal of trash and organic waste; minimize introduction of new water sources including pooling of water from dust control; removal of carcasses from bird and bat collisions; and reduction in new nesting and perching sites where feasible.

Impact BR-9: Operational activities would result in avian, and bat injury and mortality from collisions, thermal flux or electrocution at generation and transmission facilities.

The impacts of operation activities on avian and bat injury and mortality are analyzed below for wind turbines, solar, and transmission.

Wind Turbine

This section summarizes the range of impacts to bird and bat species within the Plan Area that occur as a consequence of wind turbine operation. The range of collision rates calculated in Table IV.7-53 are indicative of the overall annual collision rates for all bird and bat species, not just Covered Species. The range of collision rates is estimated for the final full build-out of wind over the life of the Plan, and is based on the range of collision rates in existing published and gray literature. While it is possible to provide a range of possible collision rates, it is not feasible to estimate the collision rate for each Covered Species, but only infer the propensity for a species to be at risk from collision by the

overlap between the species habitat models and the likely distribution of wind generation across the subareas.

The expected distribution of wind generation indicates that 35% of all collisions would occur in the West Mojave and Eastern Slopes subarea, 24% in the Pinto Lucerne Valley and Eastern Slopes subarea, 37% in the Cadiz Valley and Chocolate Mountains subarea, and 4% in the Imperial Borrego Valley subarea. Overall, the Preferred Alternative would result in a median of approximately 10,000 collisions per year for birds and approximately 47,000 collisions for bats across the Plan Area.

Pre-construction CMAs require habitat assessments and pre-construction surveys for covered riparian and wetland birds, burrowing owl, greater sandhill crane, Swainson's hawk, Bendire's thrasher, golden eagle, and plant Covered Species.

Application of siting CMAs would avoid or minimize the risk to species localities. Setbacks from active nests would be required for Bendire's thrasher, California condor, Gila woodpecker, and golden eagle. In addition, projects would be sited and designed to avoid impacts to occupied and suitable habitat for Covered Species to the maximum extent feasible. Implementation of bat specific CMAs include 0.5-mile setbacks from all bat maternity roosts and 5% disturbance caps on desert scrub and woodland habitats in the vicinity of occupied pallid bat and Townsend's big-eared bat roosts would reduce impacts to bat Covered Species.

Applicants would develop and implement project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meets the approval of the appropriate DRECP Coordination Group. The goal of the project-specific Bird and Bat Covered Species Operational Actions will be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar, geothermal, or transmission project. A bird and bat use and mortality monitoring program will be implemented during operations using current protocols and best procedures available at time of monitoring. Further, the compensation requirements in AM-LL-4 would be based on ongoing/annual fees and the biological basis for the fee will be determined by the mortality effects as annually measured and monitored according to AM-LL-4.

Similarly, a Condor Operations Strategy (COS) would be developed on a project-specific basis with the goal of avoiding mortality from operations of wind, solar and geothermal projects. No take for condors will be permitted in the form of kill from project operations. Any actions taken to encourage condors to leave an area that might result in harassment, injury, or mortality to the bird will be conducted by a Designated Biologist.

Table IV.7-53
Plan-Wide Estimated Range of Collisions per Year for Birds and Bats by Subarea – Preferred Alternative

Ecoregion Subarea	# Turbines	Birds (Collisions/Yr)[1]			Bats (Collisions/Yr)[1]		
		Low	*Median*	*High*	*Low*	*Median*	*High*
Cadiz Valley and Chocolate Mountains	710	1,000	4,000	14,000	1,000	16,000	99,000
Imperial Borrego Valley	80	100	400	2,000	200	2,000	11,000
Kingston and Funeral Mountains	-	-	-	-	-	-	-
Mojave and Silurian Valley	-	-	-	-	-	-	-
Owens River Valley	-	-	-	-	-	-	-
Panamint Death Valley	-	-	-	-	-	-	-
Pinto Lucerne Valley and Eastern Slopes	480	700	2,000	9,000	1,000	11,000	67,000
Piute Valley and Sacramento Mountains	-	-	-	-	-	-	-
Providence and Bullion Mountains	-	-	-	-	-	-	-
West Mojave and Eastern Slopes	753	1,000	4,000	14,000	2,000	17,000	105,000
Grand Total	**2,020**	**3,000**	**10,000**	**39,000**	**4,000**	**47,000**	**283,000**

[1] Method for estimation of annual bird and bat collision rates described in Section IV.7.1.1.2 and discussed in more detail in Section IV.7.2.1.3

Note: The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Solar

Collision with power towers, heliostats, solar arrays, and injury or mortality from exposure to concentrated solar flux, are all known impacts of solar generation facilities. While the nature of the impacts remain the same for all alternatives, the distribution of impacts across the Plan Area vary in relation to the anticipated quantity and location of solar facilities in each alternative.

Under the Preferred Alternative, plan-wide solar development would result in a four-fold increase in collision risks relative to baseline i.e., the would be four time more solar facilities across the Plan Area than is currently identified in the baseline conditions (Appendix O). 11% (approximately 2,024,000 acres) of the available lands in the Plan Area would be DFAs

that allow renewable energy development, of which 89% would support solar development, with anticipated solar development of 118,000 acres.

At this programmatic level, the operational impacts associated with solar facilities are assumed to be proportional to the quantity and distribution of solar development. Therefore, based on the planned development most of the collision and injury risks to avian and bat species would occur in the Imperial Borrego Valley, West Mojave and Eastern Slopes, and Cadiz Valley and Chocolate Mountains subareas, which would contain 34%, 29%, and 23% of all the solar development respectively. Anticipated development of facilities in these three key areas would result in 5, 3.6, and 4-fold increase solar facilities when compared to existing baseline (Appendix O).The remaining 16% of development would be distributed across the remaining DFAs near Barstow, in Owens Valley and in the Kingston and Funeral Mountains subareas.

The solar DFAs in the West Mojave and Eastern Slopes subarea contain large areas of modeled habitat for several covered bird and bat species including: Bendire's thrasher, burrowing owl, California condor, golden eagle, mountain plover, southwestern willow flycatcher, Swainson's hawk, and tricolored blackbird, pallid bat, California leaf-nosed bat, Townsend's big-eared bat. Given the expected concentration of development on disturbed and agricultural land, species associated with these habitats such as mountain plover, burrowing owl and Swainson's hawk are likely to be more susceptible to injury and mortality factors than other Covered Species.

The Cadiz Valley and Chocolate Mountains subarea and the Imperial Borrego Valley Subarea also contains substantial modeled habitat for bird and bat Covered Species including Bendire's thrasher, burrowing owl, California black rail, Gila woodpecker, golden eagle, greater sandhill crane, mountain plover, western yellow-billed cuckoo, and Yuma clapper rail, pallid bat, California leaf-nosed bat, Townsend's big-eared bat within or near DFAs. Development in these regions is likely in both disturbed and undisturbed habitats therefore a wider range of species are likely to be susceptible to injury and mortality factors than in the West Mojave and Eastern Slopes area. Further, due to the proximity of the Colorado River and the Salton Sea, movement of both resident and migratory water birds across the regions may be affected by solar development.

Implementation of general CMAs and species-specific survey and setback requirements would site solar facilities in areas that would limit the exposure of Covered Species and their habitat, including migratory and movement corridors. Implementation of surveying, siting and monitoring CMAs would result in avoidance of occupied nesting habitat and minimize impacts to bird and bat Covered Species. When combined with natural community setbacks for riparian and wetland habitats the effects to riparian and wetland

bird species would be minimized or avoided. Further, implementation of species-specific CMAs would contribute to minimizing impacts to bird and bat Covered Species.

Applicants would develop and implement project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meet the approval of the appropriate DRECP Coordination Group. The goal of these actions would be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar, geothermal, or transmission project. A bird and bat mortality monitoring program will be implemented during operations using current protocols and best procedures available at time of monitoring. Bird and Bat Covered Species Operational Actions would include compensatory mitigation to offset the inadvertent mortality to covered avian and bat species. Such compensation would be in accordance with AM-LL-4 and may include ongoing/annual fees. The biological basis for the fee will be determined by the mortality effects as annually measured and monitored according to AM-LL-4.

Implementation of bat specific CMAs include 500-foot setbacks from all bat maternity roosts and 5% disturbance caps on desert scrub and woodland habitats, unless in areas with lower disturbance caps, in the vicinity of occupied pallid bat and Townsend's big-eared bat roosts would reduce impacts to bat Covered Species.

Transmission

The transmission collision and electrocution impacts occur from generation tie lines (collector lines), new substations, and major transmission lines (delivery lines) that deliver power to major load centers. The distribution of impacts from collector lines would mostly occur within DFAs and be similar in distribution to the generation facilities. Most of the affected areas would be in West Mojave and Eastern Slopes, Pinto Lucerne Valley, Cadiz Valley and Chocolate Mountains, and the Imperial Borrego Valley subareas, with 2,000acres, 4,000 acres, 13,000 acres and 12,000 acres of terrestrial impacts anticipated respectively. The remaining 2,000 acres of terrestrial impacts would be spread throughout the remaining subareas.

Both large transmission lines and the network of smaller collector lines would present collision and electrocution hazard to bird Covered Species. In particular, lines running perpendicular to migratory corridors or close to bird refuges would represent a greater hazard. Such lines would include those anticipated to run parallel to the Tehachapi Mountains and those that would cross the Tehachapi mountain passes. The anticipated delivery lines in Chuckwalla Valley would run parallel to I-10 corridor in the existing transmission corridors, and cross migratory routes that run down the transverse mountain ranges used by migrating passerine birds. In the Imperial Borrego Valley subarea, new lines would run along the along the eastern side of Salton Sea in existing transmission corridors that run parallel to the foothills of the Chocolate Mountains; and would also run

from east to west between the Imperial Valley and the San Diego area. All these lines would represent additional risk to migrating overwintering and resident covered avian species. Collision risks in these areas increase during storm events when flocks of migrating birds come down to wait out the storms before continuing their migration.

All bird Covered Species may be impacted by additional transmission infrastructure. To ameliorate potential hazards, transmission projects would reduce impacts to Covered Species by implementing Plan-wide, landscape-level, natural community, and Covered Species CMAs where feasible, as discussed under the wind impacts section. Applicants would develop and implement project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meets the approval of the appropriate DRECP Coordination Group. These actions aim to avoid and minimize direct mortality of birds and bats from the operation of transmission projects. A bird mortality monitoring program will be implemented during operations using current protocols and best procedures available at time of monitoring. Bird and Bat Covered Species Operational Actions would include compensatory mitigation to offset the inadvertent mortality to covered avian species. Such compensation would be in accordance with AM-LL-4 and may include ongoing/annual fees. The biological basis for the fee will be determined by the mortality effects as annually measured and monitored according to AM-LL-4.

In addition, transmission projects would implement transmission specific CMAs that would: where feasible, bury electrical collector lines along roads (AM-TRANS-1); fit flight diverters on all transmission projects spanning or within 1,000 feet of water bodies and watercourses (AM-TRANS-2); avoid siting transmission projects that span canyons or are located on ridgelines (AM-TRANS-3); restrict transmission projects to within designated utility corridors (AM-TRANS-4). With the implementation of CMAs impacts to Covered Species would minimized.

Operational Impacts Take Estimates for Covered Avian and Bat Species

The following section summaries the initial estimates for take of Covered Species by operational activities that would require compensatory mitigation. Take estimates integrate all sources of mortality for each technology discussed above. Section IV.7.1.1.2 provides the method used to estimate the operational take for Covered avian and bat species provided here. Based on the location of DFAs and MW distribution, it is expected that take of Covered Species associated with Agricultural habitats would be particularly affected, which would include Covered Species such as burrowing owl, Swainson's hawk, greater sandhill crane and mountain plover.

Table IV.7-54
Plan-wide Estimated Total Take for Covered Avian and Bat Species – Preferred Alternative

Covered Bird and Bat Species	Solar Impact	Wind Impact	Geothermal Impact	Total Impact
Bendire's thrasher	40	30	0	70
Burrowing owl	170	30	20	210
California condor[1]	0	0	0	0
California black rail	50	10	10	60
Gila woodpecker	50	10	0	50
Golden eagle[2]	0	0	0	0
Least Bell's vireo	60	0	0	70
Mountain plover	90	40	20	140
Greater sandhill crane	20	0	10	30
Southwestern willow flycatcher	80	10	0	90
Swainson's hawk	50	20	0	60
Tricolored blackbird	80	50	0	120
Western yellow billed cuckoo	50	10	0	50
Yuma clapper rail	50	10	10	60
Grand Total Avian Species	**740**	**200**	**50**	**990**
California leaf-nosed bat	20	60	0	80
Pallid bat	20	120	0	140
Townsend's big-eared bat	50	20	10	80
Grand Total Bat Species	**90**	**200**	**10**	**300**

1 Take for California condor would not be permitted under the DRECP.

2 Take of Golden Eagle would be permitted on a project by project basis. Based on the 2013 analysis, no more than 15 golden eagles per year would be authorized for 2014 for any new activity within the Plan Area. Take limits for the DRECP area will be re-evaluated annually based on the amount of ongoing take and population estimates of eagles within the local-area population of eagles.

Impact Reduction Strategies and Mitigation

The implementation of the Plan would result in conservation of some desert lands as well as the development of renewable energy generation and transmission facilities on other lands. There are several ways in which the impacts of the renewable energy development covered by the Plan would be lessened. First, the Plan incorporates specific biological reserve design components and LUPA components for each alternative. Additionally, Covered Activities under the Plan would be required to implement CMAs to avoid and minimize impacts inside and outside the DFAs and CMAs to compensate for the impacts of Covered Activities. Additionally, the implementation of existing laws, orders, regulations and standards would reduce the impacts of project development. If significant impacts

would still result after implementation of CMAs and compliance with applicable laws and regulations, then specific mitigation measures are recommended in this section.

Conservation and Management Actions

The conservation strategy for the Preferred Alternative (presented in Volume II, Section II.3.1.2) defines specific actions that would reduce the impacts of this alternative. The impact assessment above references applicable avoidance, minimization, and compensation CMAs that would reduce and compensate for the impacts of Covered Activities.

For all Covered Activities throughout the Plan Area, the avoidance and minimization Plan-wide CMAs AM-PW-1 through AM-PW-17 would be required to reduce potential adverse effects through the implementation of Plan-wide standard practices. Resource-specific CMAs would be required for Covered Activities impacting specific resources, including the CMAs under AM-DFA-RIPWET, AM-DFA-DUNE, AM-DFA-ONC, AM-DFA-AG, AM-DFA-BAT, AM-DFA-PLANT, and AM-DFA-ICS. Additionally, all impacts resulting from Covered Activities in the Plan Area would be required to compensate impacts to biological resources (COMP-1 through COMP-5).

Laws and Regulations

Similar to the No Action Alternative, existing laws and regulations will reduce certain impacts of Covered Activity implementation. Relevant regulations are presented in the Regulatory Setting in Volume III. The requirements of relevant laws and regulations are summarized above for the No Action Alternative in Section IV.7.3.1.1.1.

Mitigation Measures

After implementation of the CMAs and existing laws and regulations, mitigation measures will be applied to further reduce some of the adverse impacts on biological resources. The biological conservation strategy is an essential part of the project description for the DRECP. Implementation of the DRECP, including the CMAs, would avoid, minimize, and compensate for the impacts of the Covered Activities such that additional mitigation measures are not necessary for all but the following resource impacts.

Mitigation Measure for Impact BR-1: Siting and construction of renewable energy and transmission development would result in impacts to rare natural communities. If habitat assessments identify rare natural communities on or within 0.25 miles of a project site, the DRECP shall require the following measure be implemented.

> **BR-1a:** Prepare a Rare Natural Community Avoidance and Mitigation Plan that specifically addresses how rare natural communities would be avoided

or mitigated for any ground disturbance impacts sited within 0.25 mile of mapped rare natural communities. The Plan shall be prepared as part of the project-specific environmental review.

For avoidance of rare natural communities, the Plan shall demonstrate that the project facilities have been sited or that the project has implemented appropriate site-specific design features to ensure that the effects of the proposed project would not directly impact or contribute to indirect effects on the rare natural communities on or adjacent to the project site. Avoidance of potential indirect effects on rare natural communities relate to dust, fire management, invasive plants, and degradation of ecological processes (i.e., hydrological processes and soil processes).

For impacts to rare natural communities, the Plan shall demonstrate that the compensation used to offset the impacts of the proposed project through CMAs COMP-1 and COMP-2 also offsets the loss of rare natural community alliances through in-kind acquisition or non-acquisition actions that benefit the rare natural community alliance(s) impacted.

As discussed above for the Covered Species, implementation of the CMAs and adherence to existing laws and regulations will also serve to minimize and avoid impacts to Non-Covered Species. No additional mitigation measures are proposed.

IV.7.3.2.1.2 Impacts of the Reserve Design

The impacts of the reserve design collectively refers to the designation and management of existing conservation areas (i.e., LLPAs and MEMLs), BLM LUPA conservation designations, and reserves established within Conservation Planning Areas. These are considered beneficial impacts for biological resources, and this section serves as a biological resources conservation analysis for this alternative. This section is organized by biological resource at the landscape level, natural community level, and species level.

Overall, of the approximately 14,921,000 acres within the Preferred Alternative Reserve Design Lands, 41% is within BLM LUPA conservation designations, 8% is in the Conservation Planning Areas, and the remaining 51% is located in existing conservation areas. Within the Reserve Design Lands, the interagency Plan-wide Conservation Priority Area covers approximately 1,847,000 acres, including 1,655,000 acres of BLM LUPA conservation designations and 193,000 acres of Conservation Planning Areas.

The DRECP Plan-Wide Reserve Design Envelope for the Preferred Alternative was developed from the reserve design envelope developed through the reserve design process described in Section I.3.4.4 and Appendix D; however, the extent of the DRECP Plan-Wide Reserve Design

Envelope for the Preferred Alternative differs from the extent of the envelope described in Volume I because it was integrated with the other elements of the alternative.

Overall, the DRECP Plan-Wide Reserve Design Envelope for the Preferred Alternative includes 93% of the conceptual reserve design envelope described in Volume I. The DRECP Plan-Wide Reserve Design Envelope for the Preferred Alternative would also include high percentages of the conceptual reserve design envelope in all of the subareas, ranging from 86% in Imperial Borrego Valley, Owens River Valley, and West Mojave and Eastern Slopes subareas to 98% in the Kingston and Funeral Mountains and Panamint Death Valley subareas.

Areas not included in the DRECP Plan-Wide Reserve Design Envelope for the Preferred Alternative that are in the conceptual reserve design envelope described in Volume I include:

- Portions of Study Area Lands: The SAAs, FAAs, and DRECP Variance Lands occupy approximately 84,000 acres that were identified in the reserve design envelope that are not designated as Reserve Design Lands under the Preferred Alternative, including the following geographic areas:
  - The area north of Kramer Junction along Highway 395
  - The Silurian Valley area at the gateway to Death Valley
  - The Lucerne Valley area along Highway 247
  - The Amboy area south of Interstate 40
- Portions of the DFAs: Areas in DFAs under the Preferred Alternative occupy approximately 464,000 acres that were identified in the conceptual reserve envelope that are not be designated as Reserve Design Lands, including the following geographic areas:
  - Palen and Chuckwalla Valley along Interstate 10 in east Riverside County
  - Lucerne Valley area along Highway 247
  - Western and eastern areas of Imperial Valley
  - East and west of Barstow
  - Foothill Areas of Palmdale and south of Adelanto
  - Foothill areas of the Antelope Valley
  - Along Highway 395 west of Ridgecrest
  - Coso Range area

- Undesignated Areas : Approximately 471,000 acres were not designated as Reserve Design Lands under the Preferred Alternative that were identified in the conceptual reserve envelope, which is primarily comprised of BLM-administered lands in the Plan Area without BLM LUPA conservation designations over them.

Landscape

Habitat Linkages

Figures III.7-26 through III.7-36 in Chapter III.7 of Volume III shows the desert linkage network for the Plan Area and in each ecoregion subarea. Table IV.7-55 shows the Plan-wide conservation of the desert linkage network under the Preferred Alternative. Conservation of the desert linkage network totals more than 2.6 million acres (71%).

The linkage in the northern portion of the Cadiz Valley and Chocolate Mountains subarea that extends from the Ward Valley to the Vidal Valley and south to the Big Maria Mountains and the Palen Mountains is almost entirely conserved. The three smaller connections in the Palen Valley are all entirely conserved. Though the majority of the remaining linkages are conserved, there are some DFAs that that may interrupt them (see Section IV.7.3.2.1.1). In the Imperial Borrego Valley, the connection that extends into the Cadiz Valley and Chocolate Mountains subarea to the east is entirely within conserved areas in this subarea. The remaining linkage along East Mesa is partly conserved. The linkages in the Kingston and Funeral Mountains subarea along Shadow Valley and between Halloran Springs and the Shadow Mountains are entirely conserved. The linkage network from Clark Mountain to Ivanpah Lake and into the Ivanpah Mountains is mostly conserved and only the western portion of the connection from I-15 to the Silurian Hills is not conserved. None of the linkages in the Mojave and Silurian Valley subarea are entirely conserved since the middle portion of the subarea is not in Reserve Design Lands. A section of the single linkage in the Owens River Valley subarea is not conserved. The connectivity of the northernmost linkage in the Panamint Death Valley subarea is preserved since most of that linkage is conserved. The connection in the China Lake Naval Weapon Center is not conserved in Reserve Design Lands, but most of the remainder of this linkage to the west is conserved. A large portion of the linkage in the eastern portion of the subarea is not in Reserve Design Lands. In the Pinto Lucerne Valley and Eastern Slopes subarea, none of the linkages are completely conserved, but the southern portion of all of them are except for the linkage that extends into the West Mojave and Eastern Slopes subarea, which is entirely conserved within the Pinto Lucerne Valley and Eastern Slopes subarea. Only the linkages along the eastern boundary of the Piute Valley and Sacramento Mountains subarea would not be in Reserve Design Lands. All of the linkages in the Providence and Bullion Mountains subarea would be largely maintained in Reserve Design Lands. In the West Mojave and Eastern Slopes subarea the connection between

the southern boundary of the Plan Area directly north to the Los Angeles/Kern County line is mostly conserved. Although large portions of the other linkages in this subarea are conserved, none of them are wholly conserved in Reserve Design Lands.

In addition to conservation of the desert linkage network, CMAs provide for the avoidance and minimization of certain linkages in the DFAs (see Section IV.7.3.2.1.1).

Table IV.7-55
Plan-Wide Conservation Analysis for the
Desert Linkage Network – Preferred Alternative

Desert Linkage Network by Ecoregion Subarea	Available Lands (acres)	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Cadiz Valley and Chocolate Mountains	890,000	187,000	484,000	10,000	681,000	76%
Imperial Borrego Valley	156,000	14,000	102,000	100	116,000	75%
Kingston and Funeral Mountains	174,000	28,000	109,000	1,000	138,000	80%
Mojave and Silurian Valley	507,000	179,000	204,000	6,000	389,000	77%
Owens River Valley	19,000	40	14,000	200	14,000	73%
Panamint Death Valley	206,000	109,000	77,000	500	186,000	90%
Pinto Lucerne Valley and Eastern Slopes	291,000	16,000	137,000	3,000	155,000	53%
Piute Valley and Sacramento Mountains	152,000	14,000	94,000	2,000	110,000	72%
Providence and Bullion Mountains	426,000	144,000	219,000	3,000	366,000	86%
West Mojave and Eastern Slopes	860,000	45,000	365,000	47,000	456,000	53%
Grand Total	**3,682,000**	**736,000**	**1,804,000**	**71,000**	**2,612,000**	**71%**

1 Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs).

2 Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), which includes BLM and non-BLM inholdings within the designation.

[3] Conservation Planning Areas include areas of the reserve design from which reserve areas would be assembled on private and other public land.

Notes: Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. Totals may not sum due to rounding. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Hydrological Resources

A conservation analysis for hydrological resources is provided below, including playa, seep/spring, and the four major rivers in the Plan Area (i.e., Amargosa, Colorado, Mojave and Owens). Conservation of riparian areas and wetlands, which co-occur with many of these hydrological resources, is provided below under Natural Communities.

Playa

Playa totals approximately 322,000 acres in the Plan Area. Overall, 54% (about 173,000 acres) would be conserved under the Preferred Alternative. Existing Conservation would account for 54% of the conservation, BLM LUPA would account for 44%, and Conservation Planning Areas would account for 1%. Additionally, playas and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks. CMAs for playas would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided riparian or wetland natural communities.

Seep/Spring

There are 477 seep/spring locations in the Plan Area in the U.S. Geological Survey (USGS) National Hydrography Dataset (NHD) in available lands. Overall, 64% (306 locations) of the seep/spring locations would be conserved under the Preferred Alternative. Over half of the seep/spring locations under the Preferred Alternative would be conserved in all subareas except the Imperial Borrego Valley, Owens River Valley, and West Mojave and Eastern Slopes. Conservation of more than half of the springs and seeps would occur in the following subareas: Cadiz Valley and Chocolate Mountains (95%, 5 locations), Kingston and Funeral Mountains (70%, 82 locations), Mojave and Silurian Valley (71%, 19 locations), Panamint Death Valley (93%, 39 locations), Pinto Lucerne Valley and Eastern Slopes (61%, 50 locations), Piute Valley and Sacramento Mountains (79%, 14 locations), and Providence and Bullion Mountains (86%, 57 locations).

Overall, Existing Conservation would account for 62% of the conservation of seep/spring locations, BLM LUPA conservation designations would account for 34%, and Conservation Planning Areas would account for 3%. Additionally, seeps and springs and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks. CMAs for seep/spring locations would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided wetland natural communities.

Major Rivers

Overall, 72% of the major rivers would be conserved under the Preferred Alternative, including 87% of the Amargosa River, 42% of the Colorado River, 71% of the Mojave River, and 70% of the Owens River. Conservation Planning Areas would account for 34% of the conservation of the major rivers, Existing Conservation would account for 45%, and BLM LUPA conservation designations would account for 22%. Additionally, major rivers and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks.

Dune and Sand Resources

Overall, 71% (approximately 1,061,000 acres) of dunes and sand resources would be conserved under the Preferred Alternative. At least 75% of dunes and sand resources would be conserved in 3 subareas in the Plan Area that contain substantial acreage of dunes and sand resources, including Cadiz Valley and Chocolate Mountains at 76% (457,000 acres), Mojave and Silurian Valley at 83% (167,000 acres), and Panamint and Death Valley at 84% (118,000 acres). Subareas with lower conservation of dunes and sand resources under the Preferred Alternative are Imperial Borrego Valley at 58% (76,000 acres), Kingston and Funeral Mountains at 66% (46,000 acres), Providence and Bullion Mountains at 58% (143,000 acres), Pinto Lucerne Valley and Eastern Slopes at 59% (38,000 acres), and West Mojave and Eastern Slopes at 33% (11,814 acres). Importantly, dunes and sand resources and associated Covered Species, natural communities and ecological functions would be fully avoided through application of the dune avoidance and minimization CMAs.

Environmental Gradients

The conservation analysis addresses four types of environmental gradients in the Plan Area: elevation, landforms, slope, and aspect.

Elevations are characterized by 1,000-foot interval classes ranging from below sea level to 9,000 feet. Approximately 92% of the Plan Area is between sea level and 5,000 feet, 6%

is below sea level, and 2% is above 5,000 feet. Under the Preferred Alternative, the majority of available lands would be conserved at all elevation classes above sea level, ranging from 64% for the 2,000 to 3,000 feet class to 81% of the 1,000 to 2,000 feet class. The average conservation of elevation classes above sea level would be 69%. The majority of Plan Area lands for each elevation class above sea level will be conserved under the Preferred Alternative optimizing the potential for successful species range shifts, contractions, and expansions, which may occur in response to climate change. In addition, the conservation of such a high proportion of Plan Area lands across all elevation classes allows for the conservation of the greatest range and diversity of natural communities and Covered Species habitats.

Landforms in the Plan Area include canyons/deeply incised streams, mountain tops/high ridges, open slopes, and plains. Plains are the dominant landform in the Plan Area totaling 13,906,000 acres, or 73% of the Plan Area. Conservation of the plains landform under the Preferred Alternative would include 62% of plains. As the majority of Covered Species in the Plan Area are associated with plains during part or all of its life cycle, the conservation of the majority of this landform benefits a large number of Covered Species. Conservation of plains would benefit those Covered Species that spend their entire life cycle within this type of landform and those Covered Species that use it during parts of their life cycle such as for breeding, migration, or wintering. Open slopes make up about 16% of the Plan Area and canyons/deeply incised streams and mountain tops/high ridges each make up about 5% to 6% of the Plan Area.

Conservation of the remaining landforms under the Preferred Alternative would include 81% of canyons/deeply incised streams, 81% of mountain tops/high ridges, and 79% of open slopes. As the majority of Plan Area lands for all landforms will be conserved under the Preferred Alternative, it optimizes the potential for successful species range shifts, contractions, and expansions, which may occur in response to climate change. In addition, the conservation of such a high proportion of Plan Area lands across all landforms allows for the conservation of the greatest range and diversity of natural communities and Covered Species habitats.

Slopes in the Plan Area are characterized by 5% interval classes. Sixty percent of the Plan Area lands are on slopes up to 5%, and 88% of the Plan Area lands are on slopes less than 20%. Conservation of the slope classes under the Preferred Alternative would range from 59% of slopes up to 5% to 86% of slopes over 50%, with 65% of slopes less than 20% conserved under the Preferred Alternative. All slope classes would have at least 59% conservation. The majority of Plan Area lands within each slope class will be conserved under the Preferred Alternative optimizing the potential for successful species range shifts, contractions, and expansions, which may occur in response to climate change. In addition, the conservation of such a high proportion of Plan Area lands across all slope

classes allows for the conservation of the greatest range of natural communities and Covered Species habitats.

Aspects in the Plan Area include nine classes: north, northeast, east, southeast, south, southwest, west, northwest, and flat. Except for flat, the remaining eight aspects are fairly evenly distributed in the Plan Area, ranging from 9% for northwest aspects to 15% for northeast aspects. Flat terrains account for only 1% of the Plan Area. Under the Preferred Alternative, conservation of aspects would range from 27% for flat terrain to 72% of southwest aspects. The majority of Plan Area lands for each aspect class will be conserved under the Preferred Alternative optimizing the potential for successful species range shifts, contractions, and expansions, which may occur in response to climate change. In addition, the conservation of such a high proportion of Plan Area lands across all aspect classes allows for the conservation of the greatest range of natural communities and Covered Species habitats. As a number of plant Covered Species have specific aspect requirements, the conservation of the majority of lands within each aspect class is beneficial to those species.

Natural Communities

Table IV.7-56 shows the conservation to natural communities within the reserve design. A conservation summary by general community is provided below. Appendix R2 provides a detailed analysis of natural community conservation by ecoregion subarea.

California forest and woodlands

Overall, approximately 62,000 acres (41%) of California forest and woodlands would be conserved under the Preferred Alternative. The majority of conservation would occur in the West Mojave and Eastern Slopes and Pinto Lucerne Valley and Eastern Slopes subareas, but conservation would also occur in the Owens River Valley subarea. Conservation would primarily come from BLM LUPA conservation designations. In addition to conservation of California forest and woodlands, CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

California forest and woodlands provide habitat for the following Covered Species: Tehachapi slender salamander, golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, bighorn sheep, and Bakersfield cactus. California forest and woodlands also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-50. Therefore, conservation of California forest and woodlands would provide conservation of suitable habitat for these species.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 31,000 acres (28%) of chaparral and coastal scrubs would be conserved under the Preferred Alternative. The majority of conservation would occur in the West Mojave and Eastern Slopes and Pinto Lucerne Valley and Eastern Slopes subareas. About 45% of the conservation of chaparral and coastal scrubs is from existing conservation. In addition to conservation of chaparral and coastal scrubs, CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Chaparral and coastal scrubs provide habitat for the following Covered Species: golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, Parish's daisy, and Bakersfield cactus. Chaparral and coastal scrubs also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-50. Therefore, conservation of chaparral and coastal scrubs would provide conservation of suitable habitat for these species.

Desert conifer woodlands

Overall, approximately 186,000 acres (65%) of desert conifer woodlands would be conserved under the Preferred Alternative. The majority of conservation would occur in the Pinto Lucerne Valley and Eastern Slopes and Providence and Bullion Mountains subareas. Conservation of this general community would primarily come from existing conservation (75% of total conservation). In addition to conservation of desert conifer woodlands, CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert conifer woodlands provide habitat for the following Covered Species: Tehachapi slender salamander, golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, bighorn sheep, and Parish's daisy. Desert conifer woodlands also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-50. Therefore, conservation of desert conifer woodlands would provide conservation of suitable habitat for these species.

Desert outcrop and badlands

Overall, approximately 1,295,000 acres (80%) of desert outcrop and badlands would be conserved under the Preferred Alternative. The majority of the conservation would occur in the Cadiz Valley and Chocolate Mountains and Piute Valley and Sacramento Mountains subareas. Most (approximately 62%) of the total conservation of desert outcrop and

badlands are in areas of existing conservation. In addition to conservation of desert outcrop and badlands, CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert outcrop and badlands provide habitat for the following Covered Species: golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, desert kit fox, and bighorn sheep. Desert outcrop and badlands also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-50. Covered and Non-Covered Species associated with desert scrub may also be associated with this general community. Therefore, conservation of desert outcrop and badlands would provide conservation of suitable habitat for these species.

Desert scrubs

Overall, approximately 9,729,000 acres (74%) of desert scrubs would be conserved under the Preferred Alternative. About half of the conserved acreage would occur in the Kingston and Funeral Mountains, Providence and Bullion Mountains, and Cadiz Valley and Chocolate Mountains subareas. However, conservation of desert scrubs is fairly well distributed with conservation in every subarea of the Plan Area. As the most prevalent desert scrub natural community in the Plan Area, lower bajada and fan Mojavean–Sonoran desert scrub accounts for the majority (80%) of the conservation of desert scrub communities. The majority (approximately 58%) of the total conservation of desert scrubs would be in existing conservation areas. In addition to conservation of desert scrubs, CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert scrubs provide habitat for the following Covered Species: golden eagle, California condor, Bendire's thrasher, burrowing owl, Swainson's hawk, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, Mohave ground squirrel, bighorn sheep, desert tortoise, flat-tailed horned lizard, Mojave fringe-toed lizard, triple-ribbed milk-vetch, alkali mariposa-lily, desert cymopterus, Mojave tarplant, Little San Bernardino Mountains linanthus, Mojave monkeyflower, and Bakersfield cactus. Desert scrubs also provide habitat for desert kit fox and burro deer (Planning Species). Desert scrubs also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-50. Therefore, conservation of desert scrubs would provide conservation of suitable habitat for these species.

Dunes

Overall, approximately 209,000 acres (74%) of dune natural communities would be conserved under the Preferred Alternative. The majority of the conserved acreage would occur in the Mojave and Silurian Valley, Imperial Borrego Valley, and Panamint Death Valley subareas. The remaining conserved acreage occurs in each of the remaining subareas. The majority (approximately 70%) of the total conservation of desert dunes would be in existing conservation. In addition to conservation of desert dunes, application of the CMAs would require that dune communities be avoided to the maximum extent feasible in DFAs. In addition, CMA application would prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

Dune communities provide habitat for the following Covered Species: Mojave fringe-toed lizard and flat-tailed horned lizard. Dune communities also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-50. Therefore, conservation of desert dunes would provide conservation of suitable habitat for these species.

Grasslands

Overall, approximately 54,000 acres (22%) of grasslands would be conserved under the Preferred Alternative. The majority of the conserved acreage would occur in the Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas. Conservation of grasslands is greatest in areas of existing conservation and lowest in Conservation Planning Areas. In addition to conservation of grasslands, CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Grassland communities provide habitat for the following Covered Species: golden eagle, burrowing owl, Swainson's hawk, mountain plover, Bendire's thrasher, and desert kit fox. Grassland communities also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-50. Therefore, conservation of grasslands would provide conservation of suitable habitat for these species.

Riparian

Overall, approximately 715,000 acres (72%) of riparian communities would be conserved under the Preferred Alternative. The majority of the conserved acreage would occur in the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas. As the most prevalent riparian natural community in the Plan Area, Madrean

Warm Semi-Desert Wash Woodland/Scrub accounts for the majority (73%) of the conservation of riparian communities.

Most of the conservation of riparian communities would occur in BLM LUPA conservation designations. In addition to conservation of riparian communities, impacts to riparian communities would not occur under the Preferred Alternative since application of the CMAs would require that riparian communities be avoided to the maximum extent feasible in DFAs. In addition, setbacks from riparian communities would be required that range from 200 feet for Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub to 0.25 mile for Southwestern North American riparian evergreen and deciduous woodland and Southwestern North American riparian/wash scrub.

Riparian communities include microphyll woodlands, which include groundwater-dependent vegetation (e.g., mesquite bosques). Under the Preferred Alternative, conservation for microphyll woodland related natural communities would include: 76% of Madrean warm semi-desert wash woodland/scrub, 58% of Mojavean semi-desert wash scrub, and 76% of Sonoran-Coloradan semi-desert wash woodland/scrub.

Riparian communities provide habitat for the following Covered and Planning Species: California black rail, Gila woodpecker, Yuma clapper rail, least Bell's vireo, southwestern willow flycatcher, western yellow-billed cuckoo, Swainson's hawk, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, burro deer, and Tehachapi slender salamander. Riparian communities also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-50. In addition, species associated with desert scrub are also associated with Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub. Conservation of riparian communities would benefit these species. Furthermore, there are CMAs to avoid impacts to riparian species including pre-construction nesting bird surveys for riparian and wetland bird Covered Species.

Wetlands

Overall, approximately 454,000 acres (52%) of wetland communities would be conserved under the Preferred Alternative. About half of the conserved acreage would occur in the Panamint Death Valley and West Mojave and Eastern Slopes subareas with the remaining conserved acreage distributed throughout the remaining subareas. As the most prevalent wetland natural communities in the Plan Area, conservation of North American warm desert alkaline scrub and herb playa and wet flat and Southwestern North American salt basin and high marsh account for the majority (81%) of the conservation of riparian communities. Almost half of the conservation of wetland communities would occur in BLM LUPA conservation designations. In addition to conservation of wetland communities, Arid West

freshwater emergent marsh and Californian warm temperate marsh/seep would be avoided under the Preferred Alternative since application of the CMAs would require that these communities be avoided to the maximum extent feasible in DFAs, including a 0.25-mile setback. Also, CMAs for North American warm desert alkaline scrub and herb playa and wet flat, southwestern North American salt basin and high marsh, and other undifferentiated wetland-related land covers (i.e., "Playa", "Wetland", and "Open Water") would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided riparian or wetland natural communities.

Wetland communities provide habitat for the following Covered Species: California black rail, Yuma clapper rail, California leaf-nosed bat, pallid bat, Townsend's big-eared bat, desert pupfish, Mohave tui chub, Owens pupfish, and Owens tui chub. In addition, species associated with desert scrub are also associated with Southwestern North American Salt Basin and High Marsh. Conservation of wetland communities would benefit these species. Furthermore, there are also CMAs to avoid impacts to wetland species including pre-construction nesting bird surveys for riparian and wetland bird Covered Species.

Wetland communities also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-50.

Table IV.7-56
Plan-Wide Conservation Analysis for Natural Communities – Preferred Alternative

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
California forest and woodland						
Californian broadleaf forest and woodland	72,000	1,000	18,000	600	20,000	28%
Californian montane conifer forest	78,000	25,000	16,000	2,000	42,000	54%
Chaparral and coastal scrub community (Cismontane scrub)						
Californian mesic chaparral	4,000	20	600	200	900	22%
Californian pre-montane chaparral	1,000	0	400	10	500	36%
Californian xeric chaparral	24,000	3,000	1,000	3,000	7,000	27%

Table IV.7-56
Plan-Wide Conservation Analysis for Natural Communities – Preferred Alternative

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Central and south coastal California seral scrub	1,000	0	10	30	40	3%
Central and South Coastal Californian coastal sage scrub	54,000	2,000	8,000	2,000	12,000	23%
Western Mojave and Western Sonoran Desert borderland chaparral	24,000	9,000	200	800	10,000	43%
Desert conifer woodlands						
Great Basin Pinyon - Juniper Woodland	287,000	159,000	16,000	10,000	186,000	65%
Desert outcrop and badlands						
North American warm desert bedrock cliff and outcrop	1,613,000	802,000	480,000	12,000	1,295,000	80%
Desert Scrub						
Arizonan upland Sonoran desert scrub	57,000	44,000	2,000	800	47,000	82%
Intermontane deep or well-drained soil scrub	106,000	30,000	51,000	2,000	82,000	77%
Intermontane seral shrubland	74,000	1,000	4,000	2,000	7,000	10%
Inter-Mountain Dry Shrubland and Grassland	437,000	110,000	123,000	5,000	238,000	54%
Intermountain Mountain Big	76,000	9,000	19,000	900	28,000	38%

Table IV.7-56
Plan-Wide Conservation Analysis for Natural Communities – Preferred Alternative

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Sagebrush Shrubland and steppe						
Lower Bajada and Fan Mojavean - Sonoran desert scrub	10,859,000	4,561,000	3,418,000	158,000	8,137,000	75%
Mojave and Great Basin upper bajada and toeslope	1,333,000	838,000	211,000	23,000	1,071,000	80%
Shadscale - saltbush cool semi-desert scrub	279,000	38,000	62,000	18,000	118,000	42%
Southern Great Basin semi-desert grassland	100	0	40	0	40	35%
Dunes						
North American warm desert dunes and sand flats	282,000	146,000	58,000	4,000	209,000	74%
Grassland						
California Annual and Perennial Grassland	230,000	23,000	18,000	11,000	52,000	23%
California annual forb/grass vegetation	8,000	400	900	300	2,000	20%
Riparian						
Madrean Warm Semi-Desert Wash Woodland/Scrub	697,000	195,000	325,000	7,000	526,000	76%

Table IV.7-56
Plan-Wide Conservation Analysis for Natural Communities – Preferred Alternative

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Mojavean semi-desert wash scrub	30,000	7,000	9,000	2,000	18,000	58%
Riparian	600	20	0	300	300	56%
Sonoran-Coloradan semi-desert wash woodland/scrub	191,000	70,000	73,000	3,000	146,000	76%
Southwestern North American riparian evergreen and deciduous woodland	6,000	500	600	2,000	3,000	44%
Southwestern North American riparian/wash scrub	66,000	7,000	8,000	6,000	22,000	34%
Wetland						
Arid West freshwater emergent marsh	4,000	40	200	1,000	1,000	32%
Californian warm temperate marsh/seep	400	0	0	80	80	20%
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	310,000	136,000	65,000	2,000	202,000	65%
Open Water	209,000	23,000	1,000	24,000	48,000	23%
Playa	78,000	400	35,000	300	36,000	46%
Southwestern North American salt basin and high marsh	261,000	31,000	105,000	9,000	145,000	56%
Wetland	8,000	30	200	500	700	8%

Table IV.7-56
Plan-Wide Conservation Analysis for Natural Communities – Preferred Alternative

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Other Land Cover						
Agriculture	711,000	6,000	3,000	3,000	12,000	2%
Developed and Disturbed Areas	447,000	3,000	3,000	300	7,000	2%
Not Mapped	7,000	200	300	300	800	12%
Rural	114,000	900	4,000	8,000	13,000	11%
Total	**19,040,000**	**7,279,000**	**5,141,000**	**324,000**	**12,745,000**	**67%**

1 Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs).

2 Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), which includes BLM and non-BLM inholdings within the designation.

3 Conservation Planning Areas include areas of the reserve design from which reserve areas would be assembled on private and other public land.

Notes: Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Covered Species Habitat

Table IV.7-57 shows the Plan-wide conservation of Covered Species modeled habitat under the Preferred Alternative before the application of CMAs. Generally, the percent conservation of Covered Species modeled habitat in available lands is highly variable, ranging from 1% for greater sandhill crane (primarily found in agricultural areas) to 84% for bighorn sheep mountain habitat.

Conservation percentages are in large part related to the location and types of habitat modeled for the Covered Species. For example, modeled habitat for greater sandhill crane, which is primarily freshwater wetland and agriculture, is limited to the Palo Verde and Imperial valleys and is mostly within DFAs.

Much of the modeled habitats for desert tortoise and Mojave fringe-toed lizard are in the Mojave Desert in areas that are either already in Existing Conservation or occur in the BLM LUPA conservation designations. Flat-tailed horned lizard modeled habitat is only conserved in the Imperial Borrego Valley, mostly in BLM LUPA conservation designations. Tehachapi

slender salamander modeled habitat occurs in the Tehachapi Mountains where conservation is primarily composed of BLM LUPA conservation designations. Furthermore, the siting of the DFAs under the Preferred Alternative largely avoid habitat for Mojave fringe-toed lizard and Tehachapi slender salamander, and CMAs that require avoidance of and setbacks from riparian habitat, wetland habitat, and dune habitat would further avoid and minimize the impacts on these species.

Conservation of bird species associated primarily with wetland and riparian habitats, including California black rail, least Bell's vireo, southwestern willow flycatcher, tricolored blackbird, western yellow-billed cuckoo, and Yuma clapper rail would be augmented by CMAs requiring avoidance of and setbacks from riparian and wetland habitats. Conservation of Bendire's thrasher occurs in every subarea of the Plan Area and is mainly in existing conservation. Burrowing owl is widespread, but is mainly associated with open areas in the West Mojave and Eastern Slopes and agricultural areas in the Imperial Borrego Valley. Suitable habitat for burrowing owl would primarily be conserved in the same subareas and most of the conservation would occur in BLM LUPA conservation designations.

California condor mainly occurs in the West Mojave and Eastern Slopes subarea so the majority of conservation is also in this subarea with most of the conserved acreage in BLM LUPA conservation designations. Golden eagle modeled suitable nesting and foraging habitat and associated conservation is widespread in the Plan Area with most of the conservation in existing conservation areas. Swainson's hawk is primarily associated with the West Mojave and Eastern Slopes, Imperial Borrego Valley, and Owens River Valley subareas; of these subareas, the majority of suitable habitat is conserved only in the Owens River Valley subarea. In addition to conservation of suitable habitat, CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs.

Most of the modeled suitable habitat for Gila woodpecker is conserved in the Cadiz Valley and Chocolate Mountains in BLM LUPA conservation designations. Conservation of mountain plover suitable habitat is mostly in Conservation Planning Areas in the West Mojave and Eastern Slopes subarea.

Conservation of suitable habitat for desert pupfish and Mohave tui chub is mostly in existing conservation areas. Although conservation of desert pupfish is relatively low especially in the Imperial Borrego Valley subarea, avoidance and setback provisions for managed wetlands and agricultural drains would conserve wetland and riparian features within the agricultural matrix and provide conservation benefits to desert pupfish. Conservation of modeled suitable habitat for Owens pupfish and Owens tui chub is primarily in Conservation Planning Areas.

Conservation of suitable habitat for bighorn sheep, both inter-mountain and mountain habitat, is widespread and is mainly in existing conservation areas. The siting of the DFAs

under the Preferred Alternative largely avoid habitat for bighorn sheep. At least half of the conservation of burro deer and Mohave ground squirrel suitable habitat is from BLM LUPA conservation designations. Conservation of suitable modeled habitat for desert kit fox is primarily from existing conservation. Suitable habitat for the covered bat species—California leaf-nosed bat, pallid bat, and Townsend's big-eared bat—is widespread and mainly conserved in existing conservation areas. In addition to conservation of suitable habitat for covered mammal species, the CMAs require avoidance of and setbacks from riparian and wetland habitat that would reduce impacts on these habitats used by Mohave ground squirrel, California leaf-nosed bat, pallid bat, and Townsend's big-eared bat.

Conservation of plant Covered Species ranges from 7% of suitable habitat for alkali mariposa-lily to 75% of suitable habitat for Mojave monkeyflower. The proportion of suitable habitat conserved in existing conservation, BLM LUPA conservation designations, and Conservation Planning Areas varies by species, as does the distribution of conserved suitable habitat. In addition to the conservation of modeled suitable habitat, the CMAs require surveys for plant Covered Species for all Covered Activities, and the CMAs requiring avoidance of and setbacks from occupied habitat would further reduce the impacts on these species.

In addition to conservation of suitable habitat for Covered Species, compensation CMAs would offset habitat loss for all Covered Species.

Table IV.7-57
Plan-Wide Conservation Analysis for Covered Species Habitat – Preferred Alternative

Species	Available Lands (acres)	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Amphibian/Reptile						
Agassiz's desert tortoise	9,858,000	3,711,000	3,434,000	179,000	7,324,000	74%
Flat-tailed horned lizard	758,000	151,000	260,000	3,000	414,000	55%
Mojave fringe-toed lizard	1,094,000	403,000	394,000	10,000	808,000	74%
Tehachapi slender salamander	48,000	300	12,000	500	13,000	27%

Table IV.7-57
Plan-Wide Conservation Analysis for Covered Species Habitat – Preferred Alternative

Species	Available Lands (acres)	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Bird						
Bendire's thrasher	2,141,000	1,196,000	424,000	29,000	1,648,000	77%
Burrowing owl	5,269,000	479,000	1,285,000	177,000	1,941,000	37%
California black rail	197,000	21,000	9,000	6,000	36,000	18%
California condor	1,240,000	81,000	180,000	39,000	300,000	24%
Gila woodpecker	106,000	10,000	32,000	2,000	44,000	41%
Golden eagle–foraging	10,747,000	5,518,000	3,067,000	111,000	8,696,000	81%
Golden eagle–nesting	4,443,000	2,689,000	866,000	42,000	3,597,000	81%
Greater sandhill crane	617,000	6,000	1,000	1,000	8,000	1%
Least Bell's vireo	226,000	86,000	37,000	18,000	140,000	62%
Mountain plover	828,000	7,000	4,000	11,000	23,000	3%
Southwestern willow flycatcher	317,000	18,000	34,000	18,000	69,000	22%
Swainson's hawk	1,455,000	24,000	62,000	62,000	148,000	10%
Tricolored blackbird	271,000	11,000	7,000	15,000	33,000	12%
Western yellow-billed cuckoo	152,000	15,000	11,000	23,000	49,000	33%
Yuma clapper rail	51,000	10,000	1,000	2,000	13,000	25%

Table IV.7-57
Plan-Wide Conservation Analysis for Covered Species Habitat – Preferred Alternative

Species	Available Lands (acres)	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Fish						
Desert pupfish	8,000	900	300	300	1,000	18%
Mohave tui chub	300	200	-	20	200	79%
Owens pupfish	18,000	600	1,000	4,000	6,000	32%
Owens tui chub	17,000	700	1,000	4,000	6,000	32%
Mammal						
Bighorn sheep – inter-mountain habitat	3,854,000	1,904,000	1,170,000	22,000	3,096,000	80%
Bighorn sheep – mountain habitat	6,649,000	4,085,000	1,417,000	57,000	5,560,000	84%
California leaf-nosed bat	7,133,000	3,138,000	2,400,000	53,000	5,591,000	78%
Mohave ground squirrel	2,383,000	216,000	857,000	146,000	1,219,000	51%
Pallid bat	16,412,000	6,836,000	4,864,000	261,000	11,960,000	73%
Townsend's big-eared bat	14,677,000	5,879,000	4,267,000	253,000	10,399,000	71%
Plant						
Alkali mariposa-lily	119,000	200	800	8,000	9,000	7%
Bakersfield cactus	278,000	20,000	61,000	3,000	85,000	31%
Barstow woolly sunflower	154,000	3,000	76,000	9,000	89,000	58%
Desert cymopterus	205,000	7,000	83,000	15,000	105,000	51%

Table IV.7-57
Plan-Wide Conservation Analysis for Covered Species Habitat – Preferred Alternative

Species	Available Lands (acres)	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Little San Bernardino Mountains linanthus	289,000	87,000	42,000	7,000	136,000	47%
Mojave monkeyflower	161,000	27,000	93,000	300	120,000	75%
Mojave tarplant	265,000	48,000	90,000	2,000	141,000	53%
Owens Valley checkerbloom	147,000	13,000	9,000	18,000	40,000	27%
Parish's daisy	188,000	82,000	45,000	2,000	129,000	68%
Triple-ribbed milk-vetch	8,000	5,000	10	400	5,000	71%

1 Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs).

2 Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), which includes BLM and non-BLM inholdings within the designation.

3 Conservation Planning Areas include areas of the reserve design from which reserve areas would be assembled on private and other public land.

Notes: Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For Agassiz's desert tortoise, desert tortoise important areas were identified that include tortoise conservation areas (TCAs), desert tortoise linkages, and desert tortoise high priority habitat (see desert tortoise BGOs in Appendix C). Table IV.7-58 provides a conservation analysis for these desert tortoise important areas, organized by desert tortoise Recovery Units: Colorado Desert, Eastern Mojave, and Western Mojave. Within the Colorado Desert Recovery Unit, 87% of TCAs, linkage habitat, and high priority habitat would be conserved under the Preferred Alternative. Within the Eastern Mojave Recovery Unit, 91% of the important areas would be conserved under the Preferred Alternative. Within the Western Mojave Recovery Unit, 78% of TCAs and linkage habitat would be conserved under the Preferred Alternative. CMAs would require avoidance of TCAs, except for impacts associated with transmission or impacts in disturbed portions of TCAs.

Additionally, the CMAs would prohibit impacts that affect the viability of desert tortoise linkages. Compensation CMAs would be required for impacts to desert tortoise, including desert tortoise important areas.

Table IV.7-58
Plan-Wide Conservation Analysis for Desert Tortoise Important Areas – Preferred Alternative

Recovery Unit	Desert Tortoise Important Areas	Available Lands (acres)	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Colorado Desert	High Priority Habitat	387,000	157,000	129,000	4,000	290,000	75%
	Linkage	469,000	126,000	257,000	4,000	387,000	82%
	TCA	3,130,000	1,544,000	1,242,000	15,000	2,801,000	89%
Colorado Desert Total		*3,986,000*	*1,827,000*	*1,628,000*	*23,000*	*3,478,000*	*87%*
Eastern Mojave	Linkage	784,000	421,000	247,000	4,000	672,000	86%
	TCA	2,096,000	1,758,000	171,000	9,000	1,938,000	92%
Eastern Mojave Total		*2,880,000*	*2,179,000*	*418,000*	*14,000*	*2,610,000*	*91%*
Western Mojave	Linkage	1,204,000	391,000	278,000	25,000	694,000	58%
	TCA	2,313,000	1,061,000	967,000	6,000	2,034,000	88%
Western Mojave Total		*3,517,000*	*1,452,000*	*1,245,000*	*31,000*	*2,728,000*	*78%*
Grand Total		**10,383,000**	**5,458,000**	**3,291,000**	**67,000**	**8,816,000**	**85%**

1 Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs).

2 Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), which includes BLM and non-BLM inholdings within the designation.

3 Conservation Planning Areas include areas of the reserve design from which reserve areas would be assembled on private and other public land.

Notes: Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1.2.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For Mohave ground squirrel, Mohave ground squirrel important areas were identified that include key population centers, linkages, expansion areas, and climate change extension areas (see Mohave ground squirrel BGOs in Appendix C). Table IV.7-59 provides a conservation analysis for these Mohave ground squirrel important areas. Approximately 71% of key populations centers and 67% of linkages would be conserved under the Preferred Alternative. Expansion areas and climate change extension areas would be conserved at 71% and 47% respectively. The SAA located in the West Mojave north of Kramer Junction is partially within a key population center and partially within a linkage, and this area is not conserved under the Preferred Alternative. CMAs would require protocol surveys in population centers and linkages, as well as provide other measures to offset the loss of habitat for Mohave ground squirrel. Additionally, the CMAs would prohibit impacts that affect the viability of linkages. Compensation CMAs would be required for impacts to Mohave ground squirrel, including Mohave ground squirrel important areas.

Table IV.7-59
Plan-Wide Conservation Analysis for
Mohave Ground Squirrel Important Areas – Preferred Alternative

Mohave Ground Squirrel Important Area Type	Available Lands (acres)	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Key Population Center	507,000	47,000	288,000	23,000	358,000	71%
Linkage	386,000	30,000	207,000	21,000	258,000	67%
Expansion Area	552,000	77,000	269,000	49,000	394,000	71%
Climate Change Extension	224,000	28,000	52,000	24,000	104,000	47%
Total	**1,669,000**	**181,000**	**816,000**	**117,000**	**1,115,000**	**67%**

1 Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs).

2 Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), which includes BLM and non-BLM inholdings within the designation.

3 Conservation Planning Areas include areas of the reserve design from which reserve areas would be assembled on private and other public land.

Notes: Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Within the Plan Area, critical habitat has been designated by the USFWS for the following Covered Species: desert tortoise, southwestern willow flycatcher, desert pupfish, and Parish's daisy. For desert tortoise, approximately 87% of the desert tortoise designated critical habitat would be conserved in Reserve Design Lands under the Preferred Alternative, including 1,517,000 acres in existing conservation areas, 2,117,000 acres in BLM LUPA conservation designations, and 16,000 acres in Conservation Planning Areas. For southwestern willow flycatcher, approximately 63% of the southwestern willow flycatcher designated critical habitat would be conserved in Reserve Design Lands under the Preferred Alternative, including 900 acres in existing conservation areas, 70 acres in BLM LUPA conservation designations, and 3,000 acres in Conservation Planning Areas. For desert pupfish, approximately 88% of the desert pupfish designated critical habitat would be conserved in Reserve Design Lands under the Preferred Alternative, including 100 acres in existing conservation areas and 500 acres in BLM LUPA conservation designations. For Parish's daisy, approximately 70% of the Parish's daisy designated critical habitat would be conserved in Reserve Design Lands under the Preferred Alternative, including 1,000 acres in BLM LUPA conservation designations.

Non-Covered Species Critical Habitat

Ten Non-Covered Species have Critical Habitat within the Plan Area. Table IV.7-60 shows the total amount of Critical Habitat and the amount within each Plan-Wide reserve designation for Non-Covered Species. These reserve designations are considered beneficial impacts for biological resources. With the exception of Pierson's milk-vetch, all or a substantial portion of each species' Critical Habitat would be within the Reserve Design Lands and within the BLM conservation designations for most species. Critical Habitat for bighorn sheep is predominately within existing conservation and for arroyo toad it would mostly be within Conservation Planning Areas.

Table IV.7-60
Critical Habitat Within Plan-Wide Reserve Design for Non-Covered Species – Preferred Alternative

Common Name	Acres of Critical Habitat within the DRECP	Acres of Critical Habitat in Existing Conservation	Acres of Critical Habitat in BLM Conservation Designations	Acres of Critical Habitat in Conservation Planning Areas	Acres in Conservation
Amargosa nitrophila	1,000	0	1,000	0	1,000
Amargosa vole	4,000	1,000	3,000	0	4,000
Arroyo toad	4,000	0	0	3,000	3,000

Table IV.7-60
Critical Habitat Within Plan-Wide Reserve Design for Non-Covered Species – Preferred Alternative

Common Name	Acres of Critical Habitat within the DRECP	Acres of Critical Habitat in Existing Conservation	Acres of Critical Habitat in BLM Conservation Designations	Acres of Critical Habitat in Conservation Planning Areas	Acres in Conservation
Ash Meadows gumplant	300	0	300	0	300
Cushenbury buckwheat	600	0	600	0	600
Cushenbury milk-vetch	1,000	0	1,000	0	1,000
Cushenbury oxytheca	100	0	100	0	100
Lane Mountain milk-vetch	14,000	3,000	11,000	0	14,000
Pierson's milk-vetch	12,000	3,000	0	400	3,400
Peninsular Bighorn sheep	47,000	41,000	400	300	41,700

Note: The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding.

Non-Covered Species Critical Habitat

Ten Non-Covered Species have Critical Habitat within the Plan Area. Table IV.7-61 shows the total amount of Critical Habitat and the amount within each Plan Wide reserve designation for Non-Covered Species. These reserve designations would be considered beneficial impacts for biological resources. All or a substantial portion of each species' Critical Habitat would be within the Reserve Design Lands and within the BLM conservation designations for most species. Critical Habitat for Peninsular bighorn sheep is predominately within existing conservation and for arroyo toad it would mostly be within Conservation Planning Areas. Critical Habitat for the Pierson's milk-vetch is managed under the Imperial Sand Dunes Recreation Area Management Plan (RAMP), which provides protections for critical habitat within conservation areas and areas designated as closed to motorized (e.g. off-highway vehicle) use.

Table IV.7-61
Critical Habitat Within Plan-Wide Reserve Design for Non-Covered Species – Preferred Alternative

Common Name	Acres of Critical Habitat within the DRECP	Acres of Critical Habitat in Existing Conservation	Acres of Critical Habitat in BLM Conservation Designations	Acres of Critical Habitat in Conservation Planning Areas	Acres in Conservation
Amargosa nitrophila	1,000	0	1,000	0	1,000
Amargosa vole	4,000	1,000	3,000	0[1]	4,000
Arroyo toad	4,000	0	0	3,000	3,000
Ash Meadows gumplant	300	0	300	0	300
Cushenbury buckwheat	600	0	600	0	600
Cushenbury milk-vetch	1,000	0	1,000	0	1,000
Cushenbury oxytheca	100	0	100	0	100
Lane Mountain milk-vetch	14,000	3,000	11,000	0	14,000
Pierson's milk-vetch	12,000	3,000	9,000[2]	400	12,000
Peninsular Bighorn sheep	47,000	41,000	400	300	41,700

[1] NLCS and ACEC designations overlap, the entire Amargosa Valley, which contains the Amargosa vole critical habitat, is located within an ACEC.

[2] Pierson's milk-vetch are protected within areas designated as closed to motorized vehicles in the Imperial Sand Dunes RAMP. The ISDRA RAMP is not considered part of the DRECP decision area.

IV.7.3.2.2 Impacts of DRECP Land Use Plan Amendment on BLM Land: Preferred Alternative

This section addresses two components of effects of the BLM LUPA: the streamlined development of renewable energy and transmission on only BLM land under the LUPA, and the impacts of the amended land use plans themselves.

IV.7.3.2.2.1 Impacts from Renewable Energy and Transmission Development on BLM Land

On BLM lands under the LUPA, the Preferred Alternative includes DFAs (approximately 367,000 acres) and transmission corridors where approximately 60,000 acres of ground disturbance related impacts and operational impacts would occur.

Impact BR-1: Siting, construction, decommissioning, and operational activities would result in loss of native vegetation.

Table IV.7-62 shows the impacts to natural communities under the Preferred Alternative on BLM Land. An effects summary by general community is provided below in relation to the Plan-wide effects analysis provided in Section IV.7.3.2.1.1. Appendix R2 provides a detailed analysis of natural community effects by ecoregion subarea.

California forest and woodlands

Overall, approximately 40 acres (0.1%) of California forest and woodlands would be impacted under the Preferred Alternative on BLM Land, about 60 acres fewer than the Plan-wide effects. Most of this difference is from fewer impacts from solar development in the West Mojave and Eastern Slopes subarea. The same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied on BLM Land with implementation of the BLM LUPA. This includes CMAs that address breeding or roosting species (AM-DFA-BAT-1), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 300 acres (1.9%) of chaparral and coastal scrubs would be impacted under the Preferred Alternative on BLM Land, which is approximately 22% of the Plan-wide effects to this general community. Most of this difference would be from fewer impacts from solar in the West Mojave and Eastern Slopes subarea, but there would also be fewer impacts in the Pinto Lucerne Valley and Eastern Slopes. The same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied on BLM Land with implementation of the BLM LUPA. This includes CMAs that address breeding, nesting, or roosting species (AM-DFA-BAT-1, AM-DFA-PLANT-1 through AM-DFA-PLANT-3, and AM-RES-BLM-PLANT-1), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

Desert conifer woodlands

Overall, approximately 400 acres (0.8%) of desert conifer woodlands would be impacted under the Preferred Alternative on BLM Land, which is approximately 31% of the Plan-wide effects. Most of this difference is from fewer impacts in the West Mojave and Eastern Slopes subarea, mostly from solar development. In addition, there are fewer impacts in the Pinto Lucerne Valley and Eastern Slopes under the BLM LUPA. The same CMAs that

would be applied Plan-wide to reduce impacts to this general community would also be applied on BLM Land with implementation of the BLM LUPA. This includes CMAs that address breeding or roosting species (AM-DFA-BAT-1), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

Desert outcrop and badlands

Overall, approximately 8,000 acres (0.7%) of desert outcrop and badlands would be impacted under the Preferred Alternative on BLM Land, which constitutes the majority (87%) of the Plan-wide effects. Most of the difference in impact acreage is in the Imperial Borrego Valley subarea, but the Cadiz Valley and Chocolate Mountains also has about 300 acres fewer impacts under the BLM LUPA compared to Plan-wide effects. The same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied on BLM Land with implementation of the BLM LUPA. This includes CMAs that address breeding, nesting, or roosting species (AM-DFA-BAT-1), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

Desert scrubs

Overall, approximately 46,000 acres (0.7%) of desert scrubs would be impacted under the Preferred Alternative on BLM Land, which is about half (51%) of the Plan-wide effects. Most of the difference in impact acreage is in impacts to Lower Bajada and Fan Mojavean - Sonoran desert scrub from solar development in the West Mojave and Eastern Slopes subarea. The same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied on BLM Land with implementation of the BLM LUPA. These include avoidance, setbacks, and/or suitable habitat impact caps for desert tortoise (AM-DFA-ICS-1 and AM-DFA-ICS-3 through AM-DFA-ICS-15), Mohave ground squirrel (AM-DFA-ICS-36 through AM-DFA-ICS-43 and AM-RES-BLM-ICS-14), bat Covered Species (AM-DFA-BAT-1), and plant Covered Species (AM-DFA-PLANT-1 through AM-DFA-PLANT-3 and AM-RES-BLM-PLANT-1). Furthermore, soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) CMAs would be implemented that would help avoid and minimize these effects and compensation CMAs would offset the effect (COMP-1 and COMP-2).

Dunes

Application of the CMAs would require avoidance of dune communities to the maximum extent feasible in DFAs so there would be no impacts to dunes under BLM LUPA. In

addition, the same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied on BLM Land with implementation of the BLM LUPA. This includes CMAs for dune avoidance and minimization (AM-DFA-DUNE-1 through AM-DFA-DUNE-3, AM-RES-BLM-DUNE-1, and AM-RES-BLM-DUNE-2) as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

Grasslands

Overall, approximately 400 acres (1.6%) of grasslands would be impacted under the Preferred Alternative on BLM Land, which is only about 8% of the Plan-wide effects. Impacts occur in all of the same subareas as Plan-wide, but impact fewer acres in each one with the greatest difference in acreage of impacts in the West Mojave and Eastern Slope subarea. Furthermore, most of the difference in impact acreage is in impacts to California Annual and Perennial Grassland from solar development. The same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied on BLM Land with implementation of the BLM LUPA. This includes CMAs that address breeding, nesting, or roosting species (AM-DFA-AG-2), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

Riparian

Application of the CMAs would require avoidance of riparian communities to the maximum extent feasible in DFAs so there would be no impacts to riparian communities under BLM LUPA. In addition, the same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied on BLM Land with implementation of the BLM LUPA. This includes CMAs for avoidance and minimization from riparian habitat and the Covered Species associated with riparian habitat (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9) as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

Wetlands

Overall, approximately 4,000 acres (1.2%) of wetlands would be impacted under the Preferred Alternative on BLM Land, which is over a third (36%) of the Plan-wide effects. Impacts occur in all of the same subareas as Plan-wide, but impact fewer acres in each one with the greatest difference in acreage of impacts in the Imperial Borrego Valley subarea. Furthermore, most of the difference in impact acreage is in impacts to open water from solar development. The same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied on BLM Land with implementation of the BLM LUPA, including avoidance of Arid West freshwater

emergent marsh and Californian warm temperate marsh/seep (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9) as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

Table IV.7-62
BLM LUPA Impact Analysis for Natural Communities – Preferred Alternative

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
California forest and woodland						
Californian broadleaf forest and woodland	44,000	10	0	0	30	40
Californian montane conifer forest	11,000	10	0	0	0	10
Chaparral and coastal scrub community (Cismontane scrub)						
Californian mesic chaparral	500	0	0	0	0	0
Californian pre-montane chaparral	300	0	0	0	0	0
Californian xeric chaparral	5,000	0	0	0	0	0
Central and south coastal California seral scrub	20	0	0	0	0	0
Central and South Coastal Californian coastal sage scrub	13,000	300	30	0	30	300
Californian mesic chaparral	500	0	0	0	0	0
Desert conifer woodlands						
Great Basin Pinyon - Juniper Woodland	50,000	300	30	0	40	400
Desert outcrop and badlands						
North American warm desert bedrock cliff and outcrop	1,203,000	5,000	700	400	2,000	8,000
Desert Scrub						
Arizonan upland Sonoran desert scrub	3,000	0	0	0	0	0
Intermontane deep or well-drained soil scrub	69,000	20	10	0	40	70
Intermontane seral shrubland	5,000	30	10	0	10	50

Table IV.7-62
BLM LUPA Impact Analysis for Natural Communities – Preferred Alternative

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Inter-Mountain Dry Shrubland and Grassland	282,000	700	20	600	200	2,000
Intermountain Mountain Big Sagebrush Shrubland and steppe	24,000	10	0	0	0	10
Lower Bajada and Fan Mojavean - Sonoran desert scrub	6,114,000	26,000	2,000	5,000	10,000	43,000
Mojave and Great Basin upper bajada and toeslope	406,000	200	40	0	200	400
Shadscale - saltbush cool semi-desert scrub	101,000	900	60	200	100	1,000
Southern Great Basin semi-desert grassland	50	0	0	0	0	0
Dunes						
North American warm desert dunes and sand flats	127,000	0	0	0	0	0
Grassland						
California Annual and Perennial Grassland	28,000	200	30	0	100	400
California annual forb/grass vegetation	1,000	70	0	0	0	70
Riparian						
Madrean Warm Semi-Desert Wash Woodland/Scrub	502,000	0	0	0	0	0
Mojavean semi-desert wash scrub	11,000	0	0	0	0	0
Riparian	122,000	0	0	0	0	0
Sonoran-Coloradan semi-desert wash woodland/scrub	400	0	0	0	0	0
Southwestern North American riparian evergreen and deciduous woodland	10,000	0	0	0	0	0

Table IV.7-62
BLM LUPA Impact Analysis for Natural Communities – Preferred Alternative

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Southwestern North American riparian/wash scrub	502,000	0	0	0	0	0
Wetland						
Arid West freshwater emergent marsh	10	0	0	0	0	0
Californian warm temperate marsh/seep	0	0	0	0	0	0
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	147,000	2,000	200	0	100	3,000
Open Water	700	10	0	10	0	30
Playa	26,000	0	0	0	0	0
Southwestern North American salt basin and high marsh	122,000	800	100	0	50	1,000
Wetland	100	20	0	0	0	20
Other Land Cover – Developed and Disturbed Areas						
Agriculture	6,000	300	0	200	100	500
Developed and Disturbed Areas	44,000	50	0	20	100	200
Not Mapped	800	10	0	10	0	20
Rural	3,000	60	0	50	10	100
Total	**9,472,000**	**37,000**	**3,000**	**7,000**	**14,000**	**60,000**

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
[2] Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Rare natural community alliances could be impacted under the Preferred Alternative on BLM lands, including impacts to Joshua tree woodland, among others. CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection that would help avoid and minimize these

effects on rare natural communities. Additionally, AM-DFA-ONC-1 and -2 would require inventorying and preserving or transplanting cactus, yuccas, and succulents. While the compensation CMAs would offset the lost habitat acreage of these impacts, the compensation CMAs do not specifically require the replacement of or mitigation for specific rare natural community alliances. After application of the CMAs, impacts to rare natural communities from the Preferred Alternative would be adverse and would require mitigation.

Impact BR-2: Siting, construction, decommissioning, and operational activities would result in adverse effects to jurisdictional waters and wetlands.

Siting, construction, decommissioning, and operations of Covered Activities have the potential to result in adverse effects to federal or state jurisdictional waters and wetlands. In the Plan Area, jurisdictional waters and wetlands would likely include the riparian and wetland communities analyzed under Impact BR-1 and may also include other features including playas, seeps/springs, major rivers, and ephemeral drainage networks.

All Covered Activities would be required to comply with existing, applicable federal and state laws and regulations related to jurisdictional waters and wetlands. Additionally, all impacts to riparian communities would be avoided under the Preferred Alternative through application of the riparian CMAs including riparian setbacks. All impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep wetlands would be avoided under the Preferred Alternative through application of the wetland CMAs, including wetland setbacks (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). Approximately 4,000 acres of other wetland communities would be impacted under the Preferred Alternative. See the analysis for the loss of native vegetation provided under BR-1 for a discussion of these potential impacts. All or a portion of the estimated wetland impacts could result in adverse effects to jurisdictional waters and wetlands without compensation. Compensation CMAs would offset any impacts determined to be unavoidable.

Additionally, playas, seeps/springs, major rivers, and ephemeral drainage networks are waters and wetland features that provide hydrological functions and may be determined to be jurisdictional waters and wetlands. Adverse effects to these features would have the potential to impact jurisdictional waters and wetlands.

<u>Playa</u>

Approximately 2% (3,000 acres) of playa would be impacted by Covered Activities under the Preferred Alternative on BLM land. The majority of impacts would be associated with solar with approximately 200 acres of wind impacts, approximately 100 acres of transmission impacts, and less than 10 acres of geothermal impacts. Ecoregion subareas of

potential impacts to playas include the Cadiz Valley and Chocolate Mountains, Kingston and Funeral Mountains, Mojave and Silurian Valley, Owens River Valley, Pinto Lucerne Valley and Eastern Slopes, Providence and Bullion Mountains, and West Mojave and Eastern Slopes subareas with most impacts in the West Mojave and Eastern Slopes subarea.

Avoidance of impacts to wetland communities including playas would benefit Covered Species that utilize these communities. In addition, application of species-specific CMAs would help avoid and minimize impacts to species associated with playas (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). CMAs would also require compliance with all applicable laws and regulations pertaining to wetlands and waters, including playas (AM-PW-9 and AM-LL-2). Compensation CMAs would offset impacts to these features (COMP-1 and COMP-2).

Seep/Spring

Seeps occur within DFAs and transmission corridors and potential impacts to seep/spring have the potential to occur under the Preferred Alternative on BLM land in the following ecoregion subareas: Owens River Valley, and Pinto Lucerne Valley and Eastern Slopes. Impacts to seeps and springs would be adverse absent implementation of avoidance measures. Impacts to seep/spring locations and associated Covered Species and hydrological functions would be avoided through adherence to avoidance and minimization CMAs, including habitat assessments and avoidance of seeps with 0.25-mile setbacks (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). Compensation CMAs would offset impacts determined to be unavoidable (COMP-1 and COMP-2).

Major Rivers

Under the Preferred Alternative on BLM land, there would no direct impacts to any of the four major rivers within the Plan Area – Amargosa, Colorado, Mojave, and Owens Rivers. However, development of the DFAs could indirectly impact these resources through alteration of hydrology. Riparian CMAs would require avoidance of these features with setbacks (AM-DFA-RIPWET-1).

Ephemeral Drainages

Ephemeral drainages occur throughout the Plan Area, and some of these features could be determined to state or federal jurisdictional waters. Impacts to ephemeral drainages would likely occur from Covered Activities. Application of riparian avoidance CMAs (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9) would avoid and minimize impacts to a portion of the ephemeral drainages within DFAs. Additionally, all Covered Activities would be required to comply with existing, applicable federal and state laws and regulations related to jurisdictional waters and wetlands.

Impact BR-3: Siting, construction, decommissioning, and operational activities would result in degradation of vegetation.

Siting, construction, and operational Covered Activities would result in the degradation of vegetation through the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants. The degree to which these factors contribute to the degradation of vegetation corresponds to the distribution of Covered Activities on BLM Land that would result in dust, fire, and introduction of invasive plants or that would use dust suppressants and implement fire management. The propensity for vegetation to be at risk of degradation was determined by the overlap between natural community models and the likely distribution of Covered Activities across subareas on BLM Land.

Based on the planned renewable energy capacity, the greatest amount of terrestrial operational impacts on BLM Land would occur in the Cadiz Valley and Chocolate Mountains subarea, as shown in Table IV.7-63. The Imperial Borrego Valley and West Mojave and Eastern Slopes subareas would also experience larger amounts of terrestrial operational impacts on BLM Land. As a result, these subareas would have the greatest potential to degrade vegetation as a result in the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants.

Table IV.7-63
BLM LUPA Terrestrial Operational Impacts – Preferred Alternative

Ecoregion Subarea	Solar Impact[1] (acres)	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Cadiz Valley and Chocolate Mountains	18,000	12,000	-	8,000	38,000
Imperial Borrego Valley	7,000	-	6,000	3,000	16,000
Kingston and Funeral Mountains	2,000	-	-	-	2,000
Mojave and Silurian Valley	1,000	-	-	600	1,600
Owens River Valley	500	-	1,000	200	1,700
Panamint Death Valley	-	-	-	-	0
Pinto Lucerne Valley and Eastern Slopes	2,000	2,000	-	1,000	5,000
Piute Valley and Sacramento Mountains	-	-	-	-	0
Providence and Bullion Mountains	500	-	-	200	700
West Mojave and Eastern Slopes	5,000	1,000	-	300	6,300
Total	**37,000**	**16,000**	**7,000**	**14,000**	**74,000**

[1] Solar impacts include ground-mounted distributed generation.

Notes: Terrestrial operational impacts collectively refers to vegetation degradation impacts (BR-3) from dust, dust suppressants, fire, fire management, and invasive plants and wildlife impacts (BR-4) from creation of noise, predator avoidance behavior, lighting and glare. For the purposes of analysis, terrestrial operational impacts were quantified using the project area extent for solar and geothermal, using 25% of the project area for wind, and the right-of-way area for transmission. Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation, short-term and long-term wind (excluding project area impacts), geothermal project area, and transmission impacts. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Dust and Dust Suppressants

Natural communities, and in particular natural communities containing Mojave desert shrubs, are susceptible to vegetation degradation from dust affects. Impacts to these natural communities would mostly occur in the Cadiz Valley and Chocolate Mountains as well as the Imperial Borrego Valley subareas, but all of the same subareas as the Plan-wide analysis would experience adverse dust affects only with fewer acres in each subarea. Plant Covered Species, that could also experience vegetation degradation from dust, would mainly be impacted by Covered Activities in the West Mojave and Eastern Slopes subarea and to a lesser extent in the Pinto Lucerne Valley and Eastern Slopes subarea, which contain most of the impacts to plant Covered Species habitat on BLM Land. Therefore, considering the distribution of Covered Activities that would cause dust as well as the sensitive natural communities and plant Covered Species the Cadiz Valley and Chocolate Mountains subarea, and to a lesser extent to the West Mojave and Eastern Slopes as well as the Imperial Borrego Valley subareas, would experience the greatest magnitude of vegetation degradation resulting from dust.

The application of dust suppressants is a common management practice, a Covered Activity under the Plan, and has been shown to effectively reduce dust. Dust-related degradation of vegetation would be further minimized with the incorporation of avoidance and minimization CMAs. The Plan-wide avoidance and minimization CMAs would generally identify vegetation in the project area (AM-PW-1), utilize standard practices to minimize the amount of exposed soils (AM-PW-14) and reduce dust caused by soil erosion (AM-PW-10). Additionally, the Preferred Alternative would implement CMAs that would identify and protect or salvage specific plant species, reducing their exposure to dust. Setbacks and suitable habitat impact caps would also be implemented for plant Covered Species in DFAs and in the DRECP Plan-Wide Reserve Design Envelope for the Preferred Alternative (AM-DFA-PLANT-1 through AM-DFA-PLANT-3).

Riparian and wetland natural communities would be susceptible to the adverse effects of dust suppressants including chemical and physical changes to an ecosystem, alter

hydrological function of soils and drainage areas, and increase pollutant loads in surface water. Impacts to these natural communities on BLM land would primarily occur in the West Mojave and Eastern Slopes subarea, and to a lesser extent in the Cadiz Valley and Chocolate Mountains subarea. These impacts would occur in all of the same subareas as the Plan-wide analysis, but would impact fewer acres in each subarea. Plant Covered Species that could also experience vegetation degradation from dust suppressants, would mainly be impacted by Covered Activities in the West Mojave and Eastern Slopes subarea and to a lesser extent in the Pinto Lucerne Valley and Eastern Slopes subarea. As a result, the West Mojave and Eastern Slopes subarea would contain the most impacts from dust suppressants on BLM land.

Avoidance and minimization CMAs implemented as part of the Preferred Alternative, including AM-PW-9 and AM-PW-10, would utilize standard practices to reduce erosion and runoff of dust suppressant into sensitive vegetation. Setbacks and avoidance requirements for all riparian natural communities and some wetland natural communities that would be implemented as part of the CMAs would minimize potential adverse effects of dust suppressants on these communities (AM-DFA-RIPWET-1).

Fire and Fuels Management

Anthropogenic ignitions of fires that could result from operational and maintenance activities associated with renewable energy facilities could destroy the natural communities found in the Plan Area. Desert scrub natural communities are naturally slow to recover from fire episodes, which can lead to permanent community type conversion that can often successfully compete with and overcome native assemblages. On BLM Land, the impacts to desert scrubs would mainly occur within the Cadiz Valley and Chocolate Mountains subarea and to a lesser extent in the Imperial Borrego Valley subarea.

Construction and maintenance of fire breaks and other fire management techniques would typically result in the removal of vegetation from woodland, chaparral, and grassland natural communities. However, fire management in the form of fuels management, may benefit natural habitats if conducted in areas of non-native, invasive, species infestations (e.g. salt cedar hot spots). The majority of impacts to California forest and woodlands, chaparral natural communities, and grassland natural communities that would be impacted on BLM Land, under the Preferred Alternative would occur predominantly occur in the West Mojave and Eastern Slopes subarea, and to a lesser extent in the Pinto Lucerne Valley and Eastern Slopes as well as the Cadiz Valley and Chocolate Mountains subareas.

Under the Preferred Alternative avoidance and minimization CMAs would be implemented to reduce the potential adverse effects of fire and fire management, including AM-PW-12 that would require projects to minimize the amount of vegetation clearing and fuel modification.

Invasive Plants

The adverse effects of invasive plants, including increasing the fuel load and the frequency of fires in plant communities and allelopathic effects that hinder the growth or establishment of other plant species. The natural communities and plant Covered Species found on BLM Land are generally at risk of adverse effects from the introduction of invasive plants. Therefore, the most vegetation degradation caused by introduction of invasive plants would occur in the Cadiz Valley and Chocolate Mountains and West Mojave and Eastern Slopes subareas. Plant Covered Species found on BLM Land would also experience potential vegetation degradation as a result of Covered Activities. The West Mojave and Eastern Slopes and Pinto Lucerne Valley and Eastern Slopes subareas would have the largest amount of impacts to plant Covered Species on BLM Land.

Under the Preferred Alternative avoidance and minimization CMAs would be implemented to reduce vegetation degradation from invasive plants, including AM-PW-7 that would ensure the timely restoration of temporarily disturbed areas that could otherwise promote invasive plants. Additional CMAs would use standard practices to control weeds and invasive plants (AM-PW-11) and require the responsible use of herbicides to minimize potential vegetation degradation (AM-PW-15) for all Covered Activities.

Impact BR-4: Siting, construction, decommissioning, and operational activities would result in loss of listed and sensitive plants; disturbance, injury, and mortality of listed and sensitive wildlife; and habitat for listed and sensitive plants and wildlife.

Impact BR-4 described at the Plan-wide level provides an impact analysis for Covered Species habitat by ecoregion subarea, specific Covered Species impact analyses, an indirect and terrestrial operational impact analysis for Covered Species, and a Non-Covered Species impact analysis. The following provides an impact analysis for Covered Species on BLM-administered lands. Most of the impacts to plant and wildlife species and their habitat under the BLM LUPA would occur in the Imperial Borrego Valley, West Mojave and Eastern Slopes, and Cadiz Valley and Chocolate Mountains subareas.

Covered Species Habitat Impact Analysis by Ecoregion Subarea

West Mojave and Eastern Slopes Ecoregion Subarea

Renewable energy development in the West Mojave and Eastern Slopes subarea would mostly be from solar development, but would also include impacts from wind and transmission development. Typical impacts from these Covered Activities on plant and wildlife species and their habitat is described in Section IV.7.2. Suitable habitat for amphibians and reptiles would be impacted in this subarea, including Agassiz's desert

tortoise and Tehachapi slender salamander. Compensation CMAs would offset habitat loss for these species.

There are impacts to suitable habitat for several bird Covered Species in the West Mojave and Eastern Slopes subarea, including Bendire's thrasher, burrowing owl, California condor, golden eagle, mountain plover, Swainson's hawk, and tricolored blackbird. CMAs require avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further avoid and minimize the impacts on tricolored blackbird and other riparian birds to less than the acreage reported in Table IV.7-64. Additionally, the CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs (AM-DFA-AG-2). Compensation CMAs would offset habitat loss for these species.

Suitable habitat for bighorn sheep, desert kit fox, Mohave ground squirrel, pallid bat, and Townsend's big-eared bat would be impacted in this subarea. The siting of the DFAs under the BLM LUPA largely avoid habitat for bighorn sheep. The CMAs require avoidance of and setbacks from riparian and wetland habitat (AM-DFA-RIPWET-1) that would further reduce the impacts on these habitats used by Mohave ground squirrel, pallid bat, and Townsend's big-eared bat to less than the acreage reported in Table IV.7-64. Compensation CMAs would offset habitat loss for these species.

Suitable habitat for the following plant species would be impacted in the West Mojave and Eastern Slopes subarea: alkali mariposa-lily, Bakersfield cactus, Barstow woolly sunflower, desert cymopterus, Mojave monkeyflower, Mojave tarplant, and Owens Valley checkerbloom. Although modeled suitable habitat for these species may be impacted by Covered Activities in this subarea, the CMAs require surveys for plant Covered Species for all Covered Activities, and the CMAs requiring avoidance of and setbacks from occupied habitat (AM-DFA-PLANT-1 through AM-DFA-PLANT-3) would further reduce the impacts on these species to less than the acreage reported in Table IV.7-64. Compensation CMAs would offset habitat loss for these species.

Cadiz Valley and Chocolate Mountains Ecoregion Subarea

Renewable energy development within the Cadiz Valley and Chocolate Mountains subarea would be primarily from solar energy development, but would also include impacts from wind and transmission. The Cadiz Valley and Chocolate Mountains subarea provides suitable habitat for amphibians and reptiles, including Agassiz's desert tortoise and Mojave fringe-toed lizard that would be impacted. The siting of the DFAs under the BLM LUPA largely avoid habitat for Mojave fringe-toed lizard, and CMAs require avoidance of and setbacks from dune habitat (AM-DFA-DUNE-1 through AM-DFA-DUNE-3) would further avoid and minimize the impacts on this species to less than the acreage reported in Table IV.7-64. Compensation CMAs would offset habitat loss for these species.

Impacts would occur to the following covered bird species in this subarea: Bendire's thrasher, burrowing owl, Gila woodpecker, golden eagle, greater sandhill crane, and mountain plover. Compensation CMAs would offset habitat loss for these species.

Suitable habitat for the following Covered and Planning mammals would be impacted in the Cadiz Valley and Chocolate Mountains subarea: bighorn sheep, burro deer, California leaf-nosed bat, desert kit fox, pallid bat, and Townsend's big-eared bat. The siting of the DFAs under the BLM LUPA largely avoid habitat for bighorn sheep. The CMAs that require avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further reduce the impacts on these habitats used by California leaf-nosed bat, pallid bat, and Townsend's big-eared bat to less than the acreage reported in Table IV.7-64. Compensation CMAs would offset habitat loss for these species.

No impacts to suitable habitat for covered plant species are expected to occur in the Cadiz Valley and Chocolate Mountains subarea under the Preferred Alternative. In addition, the CMAs require surveys for plant Covered Species for all Covered Activities, and the CMAs requiring avoidance of and setbacks from occupied habitat (AM-DFA-PLANT-1 through AM-DFA-PLANT-3) would further reduce the impacts on these species. Compensation CMAs would offset habitat loss for these species.

Imperial Borrego Valley Ecoregion Subarea

Renewable energy development within the Imperial Borrego Valley subarea would be primarily from solar and geothermal energy development, but would also include impacts from transmission development. The Imperial Borrego Valley subarea provides suitable habitat for Agassiz's desert tortoise and flat-tailed horned lizard that would be impacted. The siting of the DFAs under the BLM LUPA largely avoid habitat for flat-tailed horned lizard, and CMAs require avoidance of and setbacks from dune habitat (AM-DFA-DUNE-1 through AM-DFA-DUNE-3) would further avoid and minimize the impacts on this species to less than the acreage reported in Table IV.7-64.

Impacts would occur to suitable habitat for the following covered bird species in this subarea: Bendire's thrasher, burrowing owl, California black rail, Gila woodpecker, golden eagle, greater sandhill crane, mountain plover, southwestern willow flycatcher, Swainson's hawk, and Yuma clapper rail. CMAs require avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further avoid and minimize the impacts on southwestern willow flycatcher, California black rail, and Yuma clapper rail to less than the acreage reported in Table IV.7-64. Additionally, the CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs.

Only minimal impacts would occur to bighorn sheep mountain and inter-mountain habitat in this subarea (approximately 100 acres and 10 acres respectively). Impacts to suitable

habitat for other covered mammal species would occur for California leaf-nosed bat, desert kit fox, pallid bat, and Townsend's big-eared bat. The siting of the DFAs under the BLM LUPA largely avoid habitat for bighorn sheep. The CMAs that require avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further reduce the impacts on these habitats used by California leaf-nosed bat, pallid bat, and Townsend's big-eared bat to less than the acreage reported in Table IV.7-64.

Table IV.7-64
BLM LUPA Impact Analysis for Covered Species Habitat – Preferred Alternative

Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Amphibian/Reptile						
Agassiz's desert tortoise	5,799,000	11,000	1,000	800	4,000	17,000
Flat-tailed horned lizard	428,000	6,000	-	5,000	2,000	14,000
Mojave fringe-toed lizard	731,000	7,000	1,000	-	3,000	11,000
Tehachapi slender salamander	7,000	30	-	-	-	30
Bird						
Bendire's thrasher	773,000	800	200	50	300	1,000
Burrowing owl	1,707,000	15,000	1,000	5,000	4,000	24,000
California black rail	31,000	600	-	500	100	1,000
California condor	242,000	3,000	100	80	100	3,000
Gila woodpecker	38,000	60	10	-	20	90
Golden eagle–foraging	6,216,000	14,000	2,000	800	6,000	22,000
Golden eagle–nesting	2,421,000	900	90	20	1,000	2,000
Greater sandhill crane	3,000	100	-	100	20	300
Least Bell's vireo	69,000	10	-	10	10	30
Mountain plover	7,000	400	20	100	50	500
Southwestern willow flycatcher	46,000	400	-	600	100	1,000
Swainson's hawk	112,000	3,000	100	600	200	4,000
Tricolored blackbird	13,000	200	10	-	40	300
Western yellow-billed cuckoo	19,000	10	-	-	-	10
Yuma clapper rail	5,000	10	-	10	-	10

Table IV.7-64
BLM LUPA Impact Analysis for Covered Species Habitat – Preferred Alternative

Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Fish						
Desert pupfish	500	-	-	-	-	-
Owens pupfish	4,000	-	-	-	10	10
Owens tui chub	4,000	-	-	-	10	10
Mammal						
Bighorn sheep – inter-mountain habitat	2,243,000	2,000	300	80	800	3,000
Bighorn sheep – mountain habitat	3,568,000	600	100	-	2,000	3,000
California leaf-nosed bat	4,444,000	19,000	2,000	3,000	8,000	32,000
Mohave ground squirrel	999,000	4,000	200	900	400	6,000
Pallid bat	8,943,000	30,000	3,000	6,000	13,000	52,000
Townsend's big-eared bat	7,599,000	31,000	3,000	6,000	11,000	51,000
Plant						
Alkali mariposa-lily	2,000	50	10	-	10	60
Bakersfield cactus	77,000	900	50	-	-	900
Barstow woolly sunflower	72,000	-	-	-	10	10
Desert cymopterus	67,000	100	-	-	10	100
Little San Bernardino Mountains linanthus	80,000	200	50	-	-	200
Mojave monkeyflower	116,000	200	10	-	100	300
Mojave tarplant	136,000	400	10	50	70	600
Owens Valley checkerbloom	55,000	10	-	-	30	40
Parish's daisy	85,000	200	70	-	90	400
Triple-ribbed milk-vetch	4,000	-	-	-	-	-

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

[2] Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000;

values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Specific Covered Species Impact Analyses

For Agassiz's desert tortoise, desert tortoise important areas were identified that include tortoise conservation areas (TCAs), desert tortoise linkages, and desert tortoise high priority habitat (see desert tortoise BGOs in Appendix C). Table IV.7-65 provides an impact analysis for these desert tortoise important areas in the BLM LUPA area, organized by desert tortoise Recovery Units: Colorado Desert, Eastern Mojave, and Western Mojave. Within the Colorado Desert Recovery Unit, approximately 9,000 acres of TCAs, linkage habitat, and high priority habitat would be impacted under the Preferred Alternative. Within the Eastern Mojave Recovery Unit, approximately 600 acres of habitat would be impacted under the Preferred Alternative all of which would be located in linkage habitat. Within the Western Mojave Recovery Unit, approximately 4,000 acres of TCAs and linkage habitat would be impacted under the Preferred Alternative. CMAs would require avoidance of TCAs, except for impacts associated with transmission or impacts in disturbed portions of TCAs (AM-DFA-ICS-5 and AM-DFA-ICS-7). Additionally, the CMAs would prohibit impacts that affect the viability of desert tortoise linkages (AM-DFA-ICS-8 and AM-DFA-ICS-9). Compensation CMAs would be required for impacts to desert tortoise, including desert tortoise important areas.

Table IV.7-65
BLM LUPA Impact Analysis for
Desert Tortoise Important Areas – Preferred Alternative

Recovery Unit	Desert Tortoise Important Area	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Colorado Desert	High Priority Habitat	354,000	2,000	300	-	60	3,000
	Linkage	406,000	500	80	-	100	700
	TCA	1,728,000	500	70	-	5,000	6,000
Colorado Desert Total		*2,489,000*	*3,000*	*500*	-	*6,000*	*9,000*
Eastern Mojave	Linkage	728,000	600	-	-	-	600
	TCA	239,000	-	-	-	-	-
Eastern Mojave Total		*967,000*	*600*	-	-	-	*600*
Western Mojave	Linkage	796,000	3,000	400	-	200	3,000
	TCA	964,000	400	20	-	800	1,000
Western Mojave Total		*1,759,000*	*3,000*	*400*	-	*1,000*	*4,000*
Total		**5,215,000**	**7,000**	**800**	**-**	**7,000**	**14,000**

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

[2] Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For golden eagle, a territory-based analysis was conducted (see methods and results in the Chapter IV.7 portion of Appendix R2). Using the golden eagle nest database, golden eagle territories were identified and individually buffered by 1 mile (representing breeding areas around known nests) and 4 miles (representing use areas around known nests). A total of 148 territories occur wholly or partially within the BLM LUPA area. Under the Preferred Alternative, 29 territories have DFAs or transmission corridors within 1 mile of a nest. Implementation of the CMAs for golden eagles (AM-DFA-ICS-2) would prohibit siting or construction of Covered Activities within 1 mile of an active golden eagle nest; therefore, impacts within 1 mile of these golden eagle territories would be avoided. Under the Preferred Alternative, 69 territories have DFAs or transmission corridors within 4 miles of a nest, and the use area of these territories could be impacted through harassment and reduced foraging opportunities by Covered Activities depending on the siting of specific projects. The CMAs for golden eagles (Section II.3.1.2.5) and the approach to golden eagles (see Appendix H) describes how the impact to golden eagles would be avoided, minimized, and compensated. Based on the 2013 analysis, no more than 15 golden eagles per year in 2014 would be allowed to be taken within the Plan Area, which would be reassessed annually.

For bighorn sheep, bighorn sheep mountain habitat and intermountain (linkage) habitat have been identified in the Plan Area. Under the Preferred Alternative on BLM land, approximately 3,000 acres of mountain habitat and 3,000 acres of intermountain habitat would be impacted. The Preferred Alternative identified DFAs that largely avoid impacts to bighorn sheep mountain and intermountain habitat, and avoidance, minimization, and compensation CMAs have been developed to offset the loss of habitat for bighorn sheep.

For Mohave ground squirrel, Mohave ground squirrel important areas were identified that include key population centers, linkages, expansion areas, and climate change extension areas (see Mohave ground squirrel BGOs in Appendix C). Table IV.7-66 provides an impact analysis for these Mohave ground squirrel important areas in the BLM LUPA area. A total of approximately 3,000 acres of impact to Mohave ground squirrel important areas would occur under the Preferred Alternative. CMAs would require protocol surveys in population centers and linkages, as well as provide other measures to offset the loss of habitat for Mohave ground squirrel (AM-DFA-ICS-36 through AM-DFA-ICS-43). Additionally, the CMAs would

prohibit impacts that affect the viability of linkages. Compensation CMAs would be required for impacts to Mohave ground squirrel, including Mohave ground squirrel important areas.

Table IV.7-66
BLM LUPA Impact Analysis for Mohave Ground Squirrel Important Areas – Preferred Alternative

Mohave Ground Squirrel Important Area Type	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Key Population Center	299,000	200	10	100	200	600
Linkage	280,000	500	-	500	200	1,000
Expansion Area	282,000	900	20	400	100	1,000
Climate Change Extension	92,000	-	-	-	50	50
Total	**954,000**	**2,000**	**30**	**1,000**	**600**	**3,000**

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
[2] Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Within the Plan Area, critical habitat has been designated by the USFWS for the following Covered Species: desert tortoise, southwestern willow flycatcher, desert pupfish, and Parish's daisy. For desert tortoise, approximately 7,000 acres of impact designated critical habitat would result from the development of Covered Activities on BLM-administered lands under the Preferred Alternative located in the Chuckwalla, Fremont-Kramer, Ord-Rodman, and Superior-Cronese critical habitat units. Under the Preferred Alternative, no impacts to critical habitat designated for southwestern willow flycatcher, desert pupfish, or Parish's daisy would occur from the development of Covered Activities on BLM-administered lands.

Indirect and Terrestrial Operational Impact Analysis

Siting, construction, and operational Covered Activities could result in the potential disturbance, injury, and mortality of listed and sensitive wildlife from noise, predator avoidance behavior, as well as light and glare. The degree to which these factors contribute

to the disturbance of sensitive wildlife corresponds to the distribution of Covered Activities on BLM Land that would result in noise, predator avoidance behavior, or light and glare.

Based on the planned renewable energy capacity on BLM Land, approximately half of terrestrial operational impacts would occur in the Cadiz Valley and Chocolate Mountains subarea, as shown in Table IV.7-63. As a result, these subareas would have the greatest potential to disturbance of sensitive wildlife from noise, predator avoidance behavior, as well as light and glare.

Noise

Noise can cause physical damage to wildlife as well as behavioral changes in habitat use, activity patterns, reproduction, and foraging. Bird Covered Species, in particular during the nesting seasons, are expected to be sensitive to adverse noise effects. The largest amount of impacts to bird Covered Species modeled habitat on BLM Land would be located in the Imperial Borrego Valley and the West Mojave and Eastern Slopes subareas. Smaller mammals, such as the Mohave ground squirrel, and reptiles, such the Mojave fringe-toed lizard and flat-tailed horned lizard, could experience increased predation as a result of noise hindering their ability to detect predators. Overall, impacts on BLM Land to the habitat for these Covered Species would mostly occur in the Cadiz Valley and Chocolate Mountains and West Mojave and Eastern Slopes subareas, and to a lesser extent in the Imperial Borrego Valley subarea. As such, the disturbance of wildlife from noise would predominantly occur in the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, as well as the West Mojave and Eastern Slopes subareas.

The disturbance and injury of wildlife from noise-related effects would be reduced through the implementation of avoidance and minimization CMAs under the Preferred Alternative. The CMA AM-PW-13 would minimize noise generated from Covered Activities using standard practices while other CMAs that would avoid and setback Covered Activities from noise-sensitive wildlife including seasonal setbacks for nesting birds; setbacks from riparian and wetland habitat benefitting bids, amphibians, and small mammals; and avoidance of Mohave ground squirrel's during operations (AM-DFA-RIPWET-1, AM-DFA-RIPWET-5, and AM-DFA-ICS-36).

Predator Avoidance Behavior

The effects of predator avoidance behavior can occur for some wildlife in response to human activities during siting, construction, and operations. Different wildlife species may have varying sensitivities to predator avoidance behavior and may experiences different magnitudes of responses to Covered Activities. However, Covered Activities are expected to generally result in predator avoidance and other behavioral changes in most wildlife species that are spread throughout BLM Land. Therefore, the most disturbance of wildlife

from predator avoidance behavior would occur in the Cadiz Valley and Chocolate Mountains subarea, where most of the terrestrial operational impacts on BLM Land are anticipated. Additionally, adverse effects from predator avoidance behavior would be prevalent in the Imperial Borrego Valley to a lesser degree than the Cadiz Valley and Chocolate Mountains subarea.

Under the Preferred Alternative, avoidance and minimization CMAs for siting Covered Activities away from sensitive wildlife habitat would be implemented for riparian and wetland habitat, wildlife species that inhabit agricultural lands, and for particular species such as the Mohave ground squirrel (AM-DFA-RIPWET-1, AM-DFA-RIPWET-5, AM-DFA-AG-2, and AM-DFA-ICS-36). Additional CMAs would inform workers of actions that could potentially affect wildlife behavior and restrict activities that could disturb wildlife and their access to water and foraging habitat (AM-PW-5, AM-PW-13, and AM-RES-RL-DUNE-2). Further seasonal restrictions would also be implemented for recreational activities that might affect bighorn sheep in the DRECP Plan-Wide Reserve Design Envelope for the Preferred Alternative (AM-RES-BLM-ICS-11). The potential disturbance of wildlife from predator avoidance behavior caused by siting, construction, and operational Covered Activities would be minimized by these measures, which are applicable on BLM Land.

Light and Glare

Exposure of wildlife to light and glare can alter wildlife behavior including foraging, migration, and breeding. Solar projects would produce increased levels of glare due to the large amount of reflective panel or heliostat surfaces and would have greater effects on wildlife than other renewable energy technologies. Potential adverse effects associated with light and glare from solar projects, including solar flux and bird collisions from the lake effect are analyzed in BR-9.

As described above, most of terrestrial operational impacts on BLM Land resulting from development of all technology types of renewable energy would occur in the Cadiz Valley and Chocolate Mountains subarea. The Imperial Borrego Valley and West Mojave and Eastern Slopes subareas would also experience prevalent amount of terrestrial operational impacts on BLM Land. As a result, these subareas would have the greatest potential to disturbance of sensitive wildlife from noise, predator avoidance behavior, as well as light and glare. Similarly, impacts from solar projects on BLM Land would primarily occur in the Cadiz Valley and Chocolate Mountains subarea while the Imperial Borrego Valley and West Mojave and Eastern Slopes would experience some terrestrial operational impacts from solar development.

Bats and other diurnal predators may exploit night lighting that increases prey detectability, but would also be attracted to areas of greater development that increase potential hazards such as collision. Impacts to modeled habitat for bats would as a result of

Covered Activities on BLM Land would mainly be located in the Cadiz Valley and Chocolate Mountains subarea. Migratory birds that fly during the night may be attracted to aviation safety lighting. For bird Covered Species the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley are the subareas primarily affected, containing most of the impacts to bird Covered Species habitat on BLM Land, respectively. Therefore, considering the distribution solar and other renewable energy technologies and impacts on habitat for species sensitive light and glare the greatest wildlife disturbance is anticipated to occur in the Cadiz Valley and Chocolate Mountains subarea and to a lesser extent in the Imperial Borrego Valley subarea.

The Preferred Alternative would implement avoidance and minimization CMAs on BLM Land specifically intended to minimize effects of lighting and glare including AM-PW-14, which would implement standard practices for shielding and reducing the use of lights, as well as AM-DFA-RIPWET-4, which specifically restricts lighting within one mile of riparian or wetland vegetation. Other CMAs applicable to BLM Land would implement setbacks for riparian and wetland habitat, wildlife species that inhabit agricultural lands, and for smaller mammals, which would reduce their exposure to light and glare from Covered Activities (AM-DFA-RIPWET-1, AM-DFA-RIPWET-5, and AM-DFA-AG-2).

Non-Covered Species

Potential impacts to Non-Covered Species on BLM Land were analyzed as described in Section IV.7.3.2.1. Table IV.7-67 provides an estimation of the impacts to natural communities associated with Non-Covered Species. While estimation of impacts to natural communities likely overestimates the potential impacts to Non-Covered Species habitats, it provides a general range of level of impact.

Impacts to the dune community, riparian communities, arid west freshwater emergent marsh, and Californian warm temperate marsh/seep would be avoided through implementation of CMAs, so impacts to potential habitat for each of these species is likely greater than would actually occur. For some species, impacts would be minimized through avoidance of the specific natural communities required for those species, e.g., dune-, spring- or cave-restricted invertebrates, or riparian-obligate bird or amphibian species. The total impact to potential habitat across all technology types is less than 1%, with the exception of the grassland community at approximately 1.5% and within the agriculture/rural land cover areas at approximately 9%.

As additional analysis, Table IV.7-50 provides a cross-reference of natural communities shared between primary Covered and Non-Covered Species. There are a number of species-specific CMA's for Covered Species and natural communities that would be expected to also minimize and avoid impacts to the Non-Covered Species that may co-occur, e.g., the non-covered yellow-breasted chat often occurs within the same riparian habitat as the covered

southwestern willow flycatcher, therefore, conservation measures implemented for southwestern willow flycatcher would often benefit the yellow-breasted chat. Although the modeled habitat for the Covered Species does not always directly overlap the range of Non-Covered Species requiring similar habitat, this method provides a general additional guide for determining impacts and accounting for conservation measures.

Under the Preferred Alternative, impacts to approximately 30 acres of Lane Mountain milk-vetch critical habitat on BLM lands would have the potential to occur from transmission. This calculation of impacts from transmission is derived from the transmission corridors overlapped with designated critical habitat, thus resulting is an overestimation of actual ground disturbance.

The results of impacts on Non-Covered Species from the creation of noise, predator avoidance behavior, and light and glare would be similar to those described for the Covered Species.

Table IV.7-67
BLM LUPA Impact Analysis for Natural Communities and Associated Non-Covered Species – Preferred Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
California forest and woodland/ Desert conifer woodlands	Coast horned lizard, grey vireo, loggerhead shrike, yellow warbler, American badger, bighorn sheep, fringed myotis, hoary bat, long-eared myotis, pocketed free-tailed bat, spotted bat, Tehachapi pocket mouse, western mastiff bat, western small-footed myotis, Amargosa beardtongue, Charlotte's phacelia, creamy blazing star, Cushenbury buckwheat, Cushenbury milk-vetch, Cushenbury oxytheca, Kern buckwheat, Piute Mountains jewel-flower, purple-nerve cymopterus, San Bernardino Mountains dudleya, short-joint beavertail cactus, Spanish needle onion, Tracy's eriastrum, Cushenbury buckwheat	105,000	300	30	0	100	430	0.4%
Desert Scrub/ Chaparral Communities	Arroyo toad, banded gila monster, Coast horned lizard, Colorado Desert fringe-toed lizard, Couch's spadefoot, rosy boa, bald eagle, bank swallow, Crissal thrasher, Ferruginous hawk, gilded flicker, grey vireo, Le Conte's thrasher, loggerhead shrike, long-eared owl,	7,023,000	28,000	2,000	6,000	11,000	47,000	0.7%

Table IV.7-67
BLM LUPA Impact Analysis for Natural Communities and Associated Non-Covered Species – Preferred Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	Lucy's warbler, northern harrier, yellow warbler, American badger, Arizona myotis, big free-tailed bat, bighorn sheep, cave myotis, fringed myotis, hoary bat, long-eared myotis, Palm Springs pocket mouse, pocketed free-tailed bat, spotted bat, Tehachapi pocket mouse, western mastiff bat, western small-footed myotis, western yellow bat, yellow-eared pocket mouse, Yuma myotis, Algodones Dunes sunflower, Ash Meadows gum plant, Amargosa beardtongue, bare- stem larkspur, Charlotte's phacelia, Cima milk-vetch, Coachella Valley milk-vetch, creamy blazing star, Cushenbury buckwheat, Cushenbury milk-vetch, Cushenbury oxytheca, desert pincushion, Emory's crucifixion-thorn, flat-seeded spurge, forked buckwheat, Harwood's eriastrum, Harwood's milkvetch, Inyo County star-tulip, Kelso Creek monkeyflower, Kern buckwheat, Las Animas colubrina, Lane Mountain Milk-Vetch,							

Table IV.7-67
BLM LUPA Impact Analysis for Natural Communities and Associated Non-Covered Species – Preferred Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	Mojave Desert plum, Mojave milkweed, Munz's Cholla, nine-awned pappus grass, Orcutt's woody aster, Orocopia sage, Parish's club cholla, Pierson's milk-vetch, pink fairy-duster, Piute Mountains jewel-flower, purple-nerve cymopterus, Red Rock poppy, Red Rock tarplant, Robinson's monardella, Rusby's desert-mallow, sand food, Sodaville milk-vetch, short-joint beavertail cactus, Spanish needle onion, Thorne's buckwheat, Tracy's eriastrum, Utah beardtongue, white bear poppy, White-margined beardstongue, Wiggin's croton, Flat-seeded spurge, Parish's phacelia, Parish's alkali grass							
Dunes[3]/ Desert Outcrop and Badlands	Banded gila monster, barefoot gecko, Coast horned lizard, Colorado Desert fringe-toed lizard, Couch's spadefoot, rosy boa, bald eagle, bank swallow, Le Conte's thrasher, loggerhead shrike, long-eared owl, northern harrier, Amargosa vole, big free-tailed bat,	1,232,000	5,000	1,000	400	2,000	8,400	0.7%

Table IV.7-67
BLM LUPA Impact Analysis for Natural Communities and Associated Non-Covered Species – Preferred Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	bighorn sheep, cave myotis, bat, spotted bat, western mastiff bat, Yuma myotis, Algodones Dunes sunflower, Ash Meadows gum plant, Amargosa beardtongue, Amargosa niterwort, Charlotte's phacelia, Cima milk-vetch, Coachella Valley milk-vetch, creamy blazing star, desert pincushion, Emory's crucifixion-thorn, flat-seeded spurge, forked buckwheat, Harwood's eriastrum, Harwood's milkvetch, Inyo County star-tulip, Las Animas colubrina, Mojave Desert plum, Mojave milkweed, nine-awned pappus grass, Orcutt's woody aster, Orocopia sage, Palmer's jackass clover, Parish's club cholla, Pierson's milk-vetch, pink fairy-duster, purple-nerve cymopterus, Red Rock poppy, Red Rock tarplant, Robinson's monardella, Rusby's desert-mallow, sand food, Spanish needle onion, Thorne's buckwheat, Utah beardtongue, white bear poppy, Wiggin's croton, Palmer's jackass clover, white-							

Table IV.7-67
BLM LUPA Impact Analysis for Natural Communities and Associated Non-Covered Species – Preferred Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	margined beardtongue, flat-seeded spurge							
Grassland	Coast horned lizard, American peregrine falcon, bank swallow, Ferruginous hawk, long-eared owl, northern harrier, white-tailed kite, Amargosa vole, American badger, spotted bat, Cushenbury milk-vetch, Cushenbury oxytheca, short-joint beavertail cactus	29,000	300	30	0	100	430	1.5%
Riparian/ Wetlands	Arroyo toad, California red-legged frog, Coast horned lizard, Couch's spadefoot, Western pond turtle, American peregrine falcon, Arizona Bell's vireo, bald eagle, bank swallow, Crissal thrasher, gilded flicker, elf owl, Inyo California towhee, loggerhead shrike, long-eared owl, Lucy's warbler, northern harrier, redhead, vermillion flycatcher, white-tailed kite, yellow-breasted chat, yellow-headed blackbird, yellow warbler, Amargosa vole, Mojave River vole, Arizona myotis, cave myotis, fringed myotis, hoary bat, long-eared myotispocketed	1,443,000	3,000	300	0	200	3,500	0.2%

Table IV.7-67
BLM LUPA Impact Analysis for Natural Communities and Associated Non-Covered Species – Preferred Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	free-tailed bat, spotted bat, western mastiff bat, western yellow bat, Yuma myotis, Ash Meadows gum plant, Inyo County star-tulip, Parish's alkali grass, Parish's phacelia, Amargosa pupfish, Amargosa speckled dace, Amargosa spring snails							
Agriculture/ Rural Land Cover	American peregrine falcon, Bank swallow, loggerhead shrike, long-eared owl, northern harrier, redhead, yellow-headed blackbird, yellow warbler, Arizona myotis, hoary bat, Tehachapi pocket mouse, western mastiff bat, western yellow bat	9,000	400	0	300	100	800	8.9%

1 Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

2 Solar impacts include ground-mounted distributed generation.

3 Impacts to the dune community, riparian communities, arid west freshwater emergent marsh, and Californian warm temperate marsh/seep would be avoided through implementation of CMAs. Only impacts determined to be unavoidable would occur in these natural communities.

4 This amount assumes the loss of conservation value for all land fragmented by the well fields

Notes: The natural community classification system is described in Chapter III.7 and follows CDFG 2012. Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Impact BR-5: Siting, construction, decommissioning, and operational activities could result in loss of nesting birds (violation of the federal Migratory Bird Treaty Act and California Fish and Game Code Sections 3503, 3503.5, 3511, and 3513).

Siting, construction, decommissioning, and operations of renewable energy and transmission projects would result in the removal of vegetation and other nesting habitat and cause increased human presence and noise that has the potential to cause the loss of nesting birds, which would be a violation of the federal Migratory Bird Treaty Act and the California Fish and Game Code. The potential loss of nesting birds resulting from these activities would be adverse without application of CMAs. Avoidance and minimization CMAs (AM-PW-4, 13, 14; AM-DFA-RIPWET-1, 3, 5; AM-DFA-AG-1 through 6; AM-DFA-ICS CMAs for bird species) include the season restrictions, survey requirements, and setbacks necessary to avoid and minimize the loss of nesting birds.

Impact BR-6: Siting, construction, decommissioning, and operational activities would adversely affect habitat linkages and wildlife movement corridors, the movement of fish, and native wildlife nursery sites.

Species-specific habitat linkages and wildlife movement areas are a component of analysis conducted under Impact BR-4 above. Suitable habitat for each species includes areas of habitat linkages and wildlife movement. Analysis under BR-4 specifically incorporates habitat linkage information for desert tortoise, Mohave ground squirrel, and desert bighorn sheep. In addition to the species-specific analysis of impacts to suitable habitat supporting habitat linkages and wildlife movement for species, landscape level information on habitat linkages (i.e., Desert Linkage Network) and migratory bird movement are analyzed below.

Desert Linkage Network

Table IV.7-68 shows the impact analysis for the desert linkage network for the Preferred Alternative for the BLM LUPA. Overall, approximately 18,000 acres of desert linkage network could be adversely impacted in DFAs and transmission corridors in six different subareas. In the Cadiz Valley and Chocolate Mountains subarea, DFAs are located in the portion of the desert linkage network that connects the Colorado River to the northern part of the McCoy Mountains. There are also DFAs in the linkage network that extends along the McCoy Mountains and connects south to the Palo Verde Mesa. There are also DFAs in the Palen Valley portion of a linkage that extends south to the northern foothills of the Chocolate Mountains. In the Imperial Borrego Valley, there are DFAs in the northern portion of the desert linkage network that extends along East Mesa from east of the Imperial Valley north toward the Coachella Canal. In the Mojave and Silurian Valley, there are DFAs in the Mojave Valley in a linkage that connects the area east of Barstow north to the Superior Valley. In the Owens River Valley, there are DFAs in the desert linkage network that connects the Haiwee Reservoir to Indian Wells. In the Pinto Lucerne Valley

and Eastern Slopes subarea, there are DFAs in the desert linkage network that connects the Grapevine Canyon Recreation Lands to the Granite Mountains and the Ord Mountains. There are also DFAs in the linkage that connects Black Mountain to the Mojave River. In the West Mojave and Eastern Slopes subarea, there are DFAs in the linkage that connects the area around Baldy Mesa along the southern edge of the Plan Area to Helendale. DFAs also occur in the Brisbane Valley and in the linkages around Barstow. Farther west in the Plan Area, there are DFAs in the linkages that connect Fremont Valley and Soledad Mountain to the Tehachapi Mountains.

To avoid and minimize impacts to the desert linkage network beyond what is presented in Table IV.7-68, Covered Activities will be sited and designed to maintain the function of wildlife connectivity in the following linkage and connectivity areas: (1) across Interstate 10 centered on Wiley's Well Road to connect the Mule and McCoy mountains, (2) across Interstate 10 to connect the Chuckwalla and Palen mountains, (3) across Interstate 10 to connect the Chuckwalla Mountains to the Chuckwalla Valley east of Desert Center, and (4) the confluence of Milpitas Wash and Colorado River floodplain. In addition, the Riparian and Wetland Natural Communities and Covered Species CMAs will contribute to maintaining and promoting habitat connectivity and wildlife movement.

Table IV.7-68
BLM LUPA Impact Analysis for the Desert Linkage Network – Preferred Alternative

Desert Linkage Network by Ecoregion Subarea	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Cadiz Valley and Chocolate Mountains	709,000	7,000	1,000	-	5,000	13,000
Imperial Borrego Valley	146,000	800	-	700	50	2,000
Kingston and Funeral Mountains	138,000	-	-	-	-	-
Mojave and Silurian Valley	368,000	300	-	-	300	600
Owens River Valley	15,000	100	-	200	80	400
Panamint Death Valley	112,000	-	-	-	-	-
Pinto Lucerne Valley and Eastern Slopes	168,000	200	70	-	600	900
Piute Valley and Sacramento Mountains	111,000	-	-	-	-	-

Table IV.7-68
BLM LUPA Impact Analysis for the Desert Linkage Network – Preferred Alternative

Desert Linkage Network by Ecoregion Subarea	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Providence and Bullion Mountains	377,000	-	-	-	-	-
West Mojave and Eastern Slopes	386,000	700	30	-	100	900
Total	**2,530,000**	**9,000**	**1,000**	**900**	**6,000**	**18,000**

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
[2] Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Migratory Birds

Migration patterns and the potential impacts of different technologies are discussed, in the typical impacts section (Section IV.7.2.1.3), with direct habitat loss quantified in BR-4, and operational impacts quantified in BR-10. The following analysis focuses on the anticipated distribution of different technology types in relation to known migratory corridors, and migratory resources in each subarea.

In the Preferred Alternative wind generation is a small proportion of the overall generation mix, BLM managed DFAs are divide between the West Mojave and Eastern Slopes, Pinto Lucerne Valley and Cadiz and Chocolate Mountain Subareas. Wind development would mostly occur on the eastern slopes of the Tehachapi Mountains and in the mountainous areas around Lucerne Valley. Key bird migration areas affected would include routes between the Tehachapi and San Bernardino passes, and the temporary lakes and wetland refuges on and to the north of Edwards AFB. Wind development would also occur in the Cadiz and Chocolate Mountains subarea to the north west of Blythe in the McCoy wash area, and north of the I-10. These areas are near to the Colorado River migratory corridor, and may affect migratory bird movement to and from the Coachella Valley. No wind development in BLM managed lands in Imperial Borrego Valley is anticipated in the Preferred Alternative.

Solar development would be constructed throughout the West Mojave and Eastern slopes, Pinto Lucerne Valley, Cadiz and Chocolate Mountain and Imperial Borrego Valley subareas. The Preferred Alternative would result in new solar PV and solar thermal generation facilities in the BLM SEZ along the I-10 corridor to the west side of the Colorado River. This may give the appearance of a string of lakes on known migratory linkages for birds between the Colorado River and Coachella Valley. Similarly, development in the West Mojave and Eastern slopes, Pinto Lucerne Valley would occur in DFAs between the Tehachapi and San Bernardino Mountain passes, and dry lakes on Edwards AFB, as well as, the North Mojave dry lakes of China Lake, Koehn Lake, Harper Lake and Searles Lake. Development, around the Salton Sea and in the Imperial Valley, would be on the west side of the East Mesa ACEC, and include areas to the west of the Salton Sea that include the Truckhaven geothermal resource area and areas to the east of the Salton Sea in the foothills of the Chocolate Mountains.

Application of CMAs would require projects to be sited and designed to avoid impacts to occupied habitat and suitable habitat for Covered Species to the maximum extent feasible. A bird and bat use and mortality monitoring program would be implemented during operations Further, proposed projects that are likely to impact bird and bat Covered Species during operation would develop and implement project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meet the approval of the appropriate DRECP Coordination Group. The goal of the project-specific Bird and Bat Covered Species Operational Actions would be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind solar and geothermal projects. CMAs would negate direct loss of riparian and wetlands habitats, result in no directly loss of riparian and wetland a habitats. Further, implementation of species specific CMAs would ensure impacts to bird species would be reduced and compensation CMAs would offset habitat loss for these species. The compensation requirements in AM-LL-4 would be based on ongoing/annual fees and the biological basis for the fee would be determined by the mortality effects as annually measured and monitored according to AM-LL-4. Application of CMAs would reduce the overall impacts to migratory bird populations.

Impact BR-7: Siting, construction, decommissioning, and operational activities would result in habitat fragmentation and isolation of populations of listed and sensitive plants and wildlife.

As discussed in the Plan-wide analysis, the construction and operation of renewable energy and transmission projects can have the potential to fragment intact and interconnected landscapes resulting in isolated patches of habitat, isolated species populations, reduced gene flow, and remaining habitat that is more exposed to the edge effects of adjacent developments. The DRECP integrated planning process, as described in Volume II, avoids and minimizes this impact through the siting of DFAs and through the reserve design. In

order to minimize habitat fragmentation and population isolation, DFAs were sited in less intact and more degraded areas. Other measures of fragmentation and population isolation effects include the amount of impacts on environmental gradients such as elevation, landforms, slope, and aspect. The impacts to these four environmental gradients under the Preferred Alternative within DFAs on BLM Land would follow the same overall pattern as Plan-wide impacts and would be reduced by the same CMAs that would be applied Plan-wide to avoid and minimize impacts to habitat fragmentation (AM-LL-1 through AM-LL-4).

Impact BR-8: Construction of generation facilities or transmission lines would result in increased predation of listed and sensitive wildlife species.

As discussed in the Plan-wide analysis, Covered Activities in undisturbed desert habitat are likely to supplement predators, and increase predation rates on Covered Species. The LUPA Preferred Alternative would result in approximately 59,200 acres of long-term conversion of natural desert communities with approximately 800 acres of (30% of the total ground disturbance) within areas characterized by disturbed land cover types.

The development in the Cadiz and Chocolate Mountains subarea would be expected in the solar PEIS SEZ adjacent to the I-10 corridor, and in the McCoy Wash. Impacts are likely to increase predation on susceptible species including desert tortoise, Mojave fringe-toed lizard, and nesting bird species.

Development in the West Mojave and Eastern Slopes subareas may supplement predators in undisturbed environments including parts of the Tehachapi Mountains and DFAs to the north of Edwards AFB. In these areas, susceptible species would include nestlings and eggs of Covered Species like tricolored blackbird and golden eagle, as well as small reptiles like the Tehachapi slender salamander, and mammals like the Mohave ground squirrel.

Covered Activities associated with solar and wind generation in the Pinto and Lucerne Valley subarea would affect areas to the west and south of Johnson Valley OHV area. Species impacted would include golden eagle, and other nesting birds as well as small mammals and reptiles.

Impacts from solar and geothermal development area anticipated in Imperial Borrego Valley. Impacts would occur in three BLM managed areas: the western foothills of the Chocolate Mountains that include geothermal leasing areas studied in the 2008 west-wide geothermal PEIS; BLM land along the western edge of East Mesa ACEC; and in BLM managed lands on the west side of the Salton Sea that include the Truckhaven geothermal leasing area. Impacts may affect flat tailed horned lizard, desert tortoise, and nesting birds.

Application of a Common Raven management plan (AM-PW-6), approved by the appropriate DRECP Coordination Group would reduce project activities that increase

predator subsidization. Activities include: removal of trash and organic waste; minimize introduction of new water sources including pooling of water from dust control; removal of carcasses from bird and bat collisions; and reduction in new nesting and perching sites where feasible.

The level of impact on Non-Covered Species would be similar to that discussed for the Covered Species.

Impact BR-9: Operational activities would result in avian and bat injury and mortality from collisions, thermal flux or electrocution at generation and transmission facilities.

The impacts of operation activities on avian and bat injury and mortality are analyzed below for wind turbines, solar, and transmission.

Wind Turbine

This section summarizes wind turbine operational impacts to bird and bat species within BLM administered DFAs. The range of collision rates calculated in Table IV.7-69 are indicative of the overall annual collision rates for all bird and bat species, not just Covered Species. The range of collision rates is estimated for the final full build-out of wind over the life of the Plan, and is based on the range of collision rates in existing published and gray literature. While it is possible to provide a range of possible collision rates, it is not feasible to estimate the collision rate for each Covered Species, but only infer the propensity for a species to be at risk of collision from its expected distribution and life history of the birds in the Plan Area.

The expected distribution of wind generation indicates that 78% of all collisions in DFAs on BLM lands would occur in the Cadiz Valley and Chocolate Mountains subarea. The remaining 22% would be split between the West Mojave and Eastern Slopes subarea with 7% of collision, and the Pinto Lucerne Valley and Eastern Slopes subarea with 15%. Overall, the Preferred Alternative would result in a median of 4,000 collisions per year for birds and 19,000 collisions for bats across the Plan Area.

The high rate of collision in the Cadiz Valley and Chocolate Mountains region may result in a high risk of collision for western yellow-billed cuckoo, Yuma clapper rail, mountain plover, southwest willow flycatcher, and burrowing owl. Whereas, development in the Pinto and Lucerne Valley subarea would affect golden eagle territories and important Bendire's thrasher habitat. The remaining development in the West Mojave would affect Bendire's thrasher, burrowing owl, California condor, golden eagle, least Bell's vireo, mountain plover, southwestern willow flycatcher, Swainson's hawk, and tricolored blackbird. Pre-construction CMAs require habitat assessments and pre-construction surveys for covered

riparian and wetland bird, burrowing owl, greater sandhill crane, Swainson's hawk, Bendire's thrasher, golden eagle, and covered plant species.

Application of siting CMAs would avoid or minimize the risk to species localities. Setbacks from active nests would be required for Bendire's thrasher, California condor, Swainson's hawk, Gila woodpecker, and golden eagle. In addition, projects would be sited and designed to avoid impacts to occupied habitat, and suitable habitat for Covered Species to the maximum extent feasible. Implementation of bat specific CMAs include 0.5-mile setbacks from all bat maternity roosts and 5% disturbance caps on desert scrub and woodland habitats in the vicinity of occupied pallid bat and Townsend's big-eared bat roosts would reduce impacts to covered bat species.

Applicants would develop and implement project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meets the approval of the appropriate DRECP Coordination Group. The goal of the project-specific Bird and Bat Covered Species Operational Actions will be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar, geothermal, or transmission project. A bird and bat use and mortality monitoring program will be implemented during operations using current protocols and best procedures available at time of monitoring. Further, the compensation requirements in AM-LL-4 would be based on ongoing/annual fees and the biological basis for the fee will be determined by the mortality effects as annually measured and monitored according to AM-LL-4.

Similarly, a Condor Operations Strategy (COS) would be developed on a project-specific basis with the goal of avoiding mortality from operations of wind, solar and geothermal projects. No take for condors will be will be permitted in the form of kill from project operations. Any actions taken to encourage condors to leave an area that might result in harassment, injury, or mortality to the bird will be conducted by a Designated Biologist.

Table IV.7-69
BLM LUPA Impact Analysis – Estimated Range of Bird and Bat Collisions per Year by Subarea – Preferred Alternative

Ecoregion Subarea	# Turbines	Birds (Collisions/Yr)[1]			Bats (Collisions/Yr)[1]		
		Low	*Median*	*High*	*Low*	*Median*	*High*
Cadiz Valley and Chocolate Mountains	624	900	3,000	12,000	1,000	14,000	87,000
Imperial Borrego Valley	0	-	-	-	-	-	-
Kingston and Funeral Mountains	0	-	-	-	-	-	-
Mojave and Silurian Valley	0	-	-	-	-	-	-

Table IV.7-69
BLM LUPA Impact Analysis – Estimated Range of Bird and Bat Collisions per Year by Subarea – Preferred Alternative

Ecoregion Subarea	# Turbines	Birds (Collisions/Yr)[1]			Bats (Collisions/Yr)[1]		
		Low	*Median*	*High*	*Low*	*Median*	*High*
Owens River Valley	0	-	-	-	-	-	-
Panamint Death Valley	0	-	-	-	-	-	-
Pinto Lucerne Valley and Eastern Slopes	122	200	600	2,000	200	3,000	17,000
Piute Valley and Sacramento Mountains	0	-	-	-	-	-	-
Providence and Bullion Mountains	0	-	-	-	-	-	-
West Mojave and Eastern Slopes	53	100	300	,000	100	1,000	7,000
Grand Total	**799**	**1,000**	**4,000**	**15,000**	**2,000**	**19,000**	**112,000**

[1] Method for estimation of annual bird and bat collision rates described in Section IV.7.1.1.2 and discussed in more detail in Section IV.7.2.1.3.

Note: The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Solar

Under the Preferred Alternative, impacts to avian and bat species from solar development based on the planned solar capacity. 50% of the collision risks would occur in the Cadiz and Chocolate Mountains, with, 19% in Imperial Borrego Valley, 14% in West Mojave and Eastern Slopes, 6% in the Kingston and Funeral Mountains, 5% at Pinto Lucerne Valley, and the remaining 6% spread across the rest of the plan area.

The development in the Cadiz and Chocolate Mountains subarea would occur in the solar PEIS SEZ adjacent to the I-10 corridor, and in the McCoy Wash. Species impacted by Covered Activities include: Bendire's thrasher, burrowing owl, Gila woodpecker, golden eagle, greater sandhill crane, and mountain plover.

Development in the West Mojave and Eastern Slopes subareas would occur in the Tehachapi Mountains and areas to the north of Edwards AFB. In these areas, susceptible species would include tricolored blackbird, golden eagle, mountain plover, Bendire's thrasher, burrowing owls, Swainson's hawk, and to a lesser extent Swainson's hawk, pallid bat, California leaf-nosed bat, Townsend's big-eared bat. Covered Activities associated with solar generation in the Pinto and Lucerne Valley subarea would affect areas to the

west and south of Johnson Valley OHV area. Species impacted would include golden eagle, and other nesting. Anticipated impacts in Imperial Borrego Valley would occur in three BLM managed areas: the western foothills of the Chocolate Mountains; land along the western edge of East Mesa ACEC; and in BLM managed lands on the west side of the Salton Sea species. Birds and bats at risk from solar impacts include Bendire's thrasher, burrowing owl, California black rail, Gila woodpecker, golden eagle, greater sandhill crane, mountain plover, southwestern willow flycatcher, Swainson's hawk, and Yuma clapper rail, pallid bat, California leaf-nosed bat, Townsend's big-eared bat.

To offset potential impacts, the application of CMAs would require projects to be sited and designed to avoid impacts to occupied and suitable habitat for Covered Species, to the maximum extent feasible. Further, siting and construction CMAs require setbacks from riparian and wetland habitats which would minimize direct loss. Compensation CMAs would offset habitat loss for Covered Species. A bird and bat use and mortality monitoring program would be implemented during operations. Any proposed projects that are likely to impact bird and bat Covered Species during operation would develop and implement project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meet the approval of the appropriate DRECP Coordination Group. The goal of the project-specific Bird and Bat Covered Species Operational Actions would be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar and geothermal projects. The compensation requirements of AM-LL-4 would be based on ongoing/annual fees and the biological basis for the fee would be determined by the mortality effects as annually measured and monitored according to AM-LL-4. In combination, the application of siting, monitoring, operational and compensation CMAs would minimize impacts to resident and migratory birds. Bat mortality from solar facilities may occur because of collision or solar flux injury. No DFAs are known to be specifically sensitive areas for bat foraging, and implementation of bat specific CMAs include 500 feet setbacks from all bat maternity roosts and 5% disturbance caps on desert scrub and woodland habitats in the vicinity of occupied pallid bat and Townsend's big-eared bat roosts would reduce impacts to bat Covered Species. Further, the development of Bird and Bat Covered Species Operational Actions (AM-LL-4) as discussed above would greatly reduce the risk to bat populations. Consequently, application of CMAs would reduce the overall impacts to bat populations.

Transmission

The transmission collision and electrocution impacts would occur from generation tie lines (collector lines), new substations, and major transmission lines (delivery lines) that deliver power to major load centers. The distribution of impacts from collector lines would mostly occur within DFAs and be similar in distribution to the generation facilities. Most of the affected areas would be in Mojave and Silurian Valley, Pinto Lucerne Valley, Cadiz Valley and

Chocolate Mountains, and the Imperial Borrego Valley subareas, with 1,000 acres, 1,000 acres, 8,000 acres and 3,000 acres of terrestrial impacts anticipated respectively. The remaining 1,000 acres of terrestrial impacts would be spread throughout the remaining subareas.

Both large transmission lines and the network of smaller gen-tie lines would present collision and electrocution hazard to covered bird species. In particular, lines running perpendicular to migratory corridors, and/or close to bird refuges would represent a greater hazard. Such lines would include anticipated delivery lines in Chuckwalla Valley would run parallel to I-10 corridor in the designated BLM/368 transmission corridors. In the Imperial Borrego Valley subarea, lines would run along the along the eastern side of Salton Sea in existing transmission corridors that run parallel to the foothills of the Chocolate Mountains.; as well as collector lines running along the western side of the Salton Sea from the Truckhaven geothermal resource areas. All these lines would represent additional risk to migrating and overwintering covered avian species, due to their location. Collision risks in these areas increase during storm events when flocks of migrating birds come down to wait out the storms before continuing their migration.

All covered bird species may be impacted by additional transmission infrastructure. To ameliorate potential hazards, transmission projects would reduce impacts to Covered Species by implementing Plan-wide, landscape-level, natural community, and Covered Species CMAs where feasible, as discussed under the wind impacts section.

Applicants would develop and implement a project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meets the approval of the appropriate DRECP Coordination Group. The goal of the project-specific Bird and Bat Covered Species Operational Actions will be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar, geothermal, or transmission project. A bird and bat use and mortality monitoring program will be implemented during operations using current protocols and best procedures available at time of monitoring. Further, the compensation requirements in AM-LL-4 would be based on ongoing/annual fees and the mortality effects as annually measured and monitored according to AM-LL-4will determine the biological basis for the fee.

In addition, transmission projects would implement transmission specific CMAs that would: where feasible, bury electrical collector lines along roads (AM-TRANS-1); fit flight diverters on all transmission projects spanning or within 1,000 feet of water bodies and watercourses (AM-TRANS-2); avoid siting transmission projects that span canyons or are located on ridgelines (AM-TRANS-3); restrict transmission projects to within designated utility corridors (AM-TRANS-4). With the implementation of CMAs impacts to Covered Species would minimized.

The level of impact on Non-Covered Species would be similar to that discussed for the Covered Species for each of the renewable energy types discussed above.

Operational Impacts Take Estimates for Covered Avian and Bat Species

The following section summaries the initial estimates for take of Covered Species by operational activities that would require compensatory mitigation. Take estimates integrate all sources of mortality for each technology discussed above.

Table IV.7-70
BLM LUPA Estimated Total Take for Covered Avian and Bat Species – Preferred Alternative

Covered Bird and Bat Species	Solar Impact	Wind Impact	Geothermal Impact	Total Impact
Bendire's thrasher	10	10	0	20
Burrowing owl	40	10	10	60
California condor[1]	0	0	0	0
California black rail	20	0	0	20
Gila woodpecker	20	0	0	20
Golden eagle[2]	n/a	n/a	n/a	n/a
Least Bell's vireo	30	0	0	30
Mountain plover	30	10	10	50
Greater sandhill crane	0	0	0	0
Southwestern willow flycatcher	30	10	0	40
Swainson's hawk	10	10	0	20
Tricolored blackbird	10	20	0	30
Western yellow billed cuckoo	20	0	0	20
Yuma clapper rail	20	0	0	20
Grand Total Avian Species	**240**	**70**	**20**	**330**
California leaf-nosed bat	10	50	0	60
Pallid bat	10	60	0	70
Townsend's big-eared bat	20	10	0	30
Grand Total Bat Species	**40**	**120**	**0**	**160**

1 Take for California condor would not be permitted under the DRECP.

2 Take of Golden Eagle would be permitted on a project by project basis. Based on the 2013 analysis, no more than 15 golden eagles per year would be authorized for 2014 for any new activity within the Plan Area. Take limits for the DRECP area will be re-evaluated annually based on the amount of ongoing take and population estimates of eagles within the local-area population of eagles.

IV.7.3.2.2.2 Impacts of Changes to BLM Land Designations

The BLM LUPA would establish conservation designations on BLM-administered lands under each alternative that would conserve biological resources, including NLCS, ACECs, and wildlife allocations. On BLM-administered lands under the Preferred Alternative, the BLM LUPA would designate approximately 4,900,000 acres of BLM LUPA conservation designations, including 3,520,000 acres of NLCS, 1,362,000 acres of ACEC, and 18,000 acres of wildlife allocation. Additionally, existing conservation areas occur on BLM-administered lands that conserve biological resources. Appendix L provides unit-specific ACEC and NLCS worksheets that identify relevant resources, specific resources goals, objectives, and prescribed management actions. The following provides an analysis of the conservation that would be provided in these BLM LUPA conservation designations on BLM-administered lands, organized by landscape, natural communities, and species.

The BLM LUPA would also establish Special Recreation Management Areas (SRMAs) and would identify lands to be managed to protect Wilderness Characteristics. These BLM LUPA land designations are overlays that specify particular management and uses for specific areas. Unit-specific SRMA worksheets are provided in Appendix L and the CMAs specific to lands managed to protect Wilderness Characteristics are provided as part of the Volume II descriptions of the DRECP alternatives. These land designations may co-occur with the BLM LUPA conservation designations (NLCS, ACECs, and wildlife allocations). Where these land designations do no co-occur with the BLM LUPA conservation designations, they were not included as part of the DRECP Plan-Wide Reserve Design Envelope for the Preferred Alternative and were not included in the conservation analysis for biological resources provided in this section.

Landscape

Habitat Linkages

Table IV.7-71 shows the conservation of the desert linkage network under the Preferred Alternative for the BLM LUPA. Conservation of the desert linkage network totals more than 2.6 million acres (71%). The linkage in the northern portion of the Cadiz Valley and Chocolate Mountains subarea that extends from the Ward Valley to the Vidal Valley and south to the Big Maria Mountains and the Palen Mountains is almost entirely conserved. The three smaller connections in the Palen Valley are not all conserved. Though the majority of the remaining linkages are conserved, there are some DFAs that that may interrupt them (see Section IV.7.3.2.1.1). In the Imperial Borrego Valley, the connection that extends into the Cadiz Valley and Chocolate Mountains subarea only includes small disjunct areas that are not conserved. The remaining linkage along East Mesa is partly conserved. The connectivity in the linkages in the Kingston and Funeral Mountains subarea along Shadow Valley and between Halloran Springs and the Shadow Mountains is maintained with most of these areas

in conservation. The linkage network from Clark Mountain to Ivanpah Lake and into the Ivanpah Mountains is mostly conserved and most of the eastern portion of the connection from I-15 to the Silurian Hills is conserved. None of the linkages in the Mojave and Silurian Valley subarea are entirely conserved since the middle portion of the subarea is not in Reserve Lands. A section of the single linkage in the Owens River Valley subarea is not conserved, along with much of the eastern portion at the northern end of the linkage. The connectivity of the northernmost linkage in the Panamint Death Valley subarea is preserved since most of that linkage is conserved. The connection in the China Lake Naval Weapon Center is not conserved in Reserve Lands, but most of the remainder of this linkage to the west is conserved. Most of the linkage in the eastern portion of the subarea is not in Reserve Lands. In the Pinto Lucerne Valley and Eastern Slopes subarea, none of the linkages are completely conserved. Only the linkages along the eastern boundary of the Piute Valley and Sacramento Mountains subarea and pockets of the remaining linkages would not be in Reserve Lands. All of the linkages in the Providence and Bullion Mountains subarea would be largely maintained in Reserve Lands except for small portions outside of the BLM LUPA area. In the West Mojave and Eastern Slopes subarea. although large portions of the other linkages in this subarea conserved, none of them are wholly conserved in Reserve Lands.

In addition to conservation of the desert linkage network, CMAs provide for the avoidance and minimization of certain linkages in the DFAs (see Section IV.7.3.2.2.1).

Table IV.7-71
BLM LUPA Conservation Analysis for the
Desert Linkage Network – Preferred Alternative

Desert Linkage Network by Ecoregion Subarea	Available Lands (acres)	Existing Conservation[1] (acres)	NLCS[2] (acres)	ACEC (acres)	Wildlife Allocation (acres)	Total Conservation (acres)	% of Available Lands
Cadiz Valley and Chocolate Mountains	890,000	187,000	400,000	84,000	-	681,000	76%
Imperial Borrego Valley	156,000	14,000	102,000	300	-	116,000	75%
Kingston and Funeral Mountains	174,000	28,000	77,000	32,000	-	138,000	80%

Table IV.7-71
BLM LUPA Conservation Analysis for the Desert Linkage Network – Preferred Alternative

Desert Linkage Network by Ecoregion Subarea	Available Lands (acres)	Existing Conservation[1] (acres)	NLCS[2] (acres)	ACEC (acres)	Wildlife Allocation (acres)	Total Conservation (acres)	% of Available Lands
Mojave and Silurian Valley	507,000	179,000	67,000	137,000	-	389,000	77%
Owens River Valley	19,000	40	14,000	-	-	14,000	73%
Panamint Death Valley	206,000	109,000	40,000	37,000	-	186,000	90%
Pinto Lucerne Valley and Eastern Slopes	291,000	16,000	52,000	84,000	-	155,000	53%
Piute Valley and Sacramento Mountains	152,000	14,000	93,000	1,000	-	110,000	72%
Providence and Bullion Mountains	426,000	144,000	202,000	17,000	-	366,000	86%
West Mojave and Eastern Slopes	860,000	45,000	97,000	260,000	8,000	456,000	53%
Grand Total	**3,682,000**	**736,000**	**1,142,000**	**653,000**	**8,000**	**2,612,000**	**71%**

[1] Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on BLM-administered land

[2] Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), on BLM-administered land

Notes: Conservation acreages reported for Existing Conservation and BLM LUPA conservation designations reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Overlaps of ACECs or Wildlife Allocations with NLCS designations are reported as NLCS designations. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore, the subtotals may not sum to the total within the table.

Hydrological Resources

A conservation analysis for hydrological resources is provided below, including playa, seep/spring, and the four major rivers in the Plan Area (i.e., Amargosa, Colorado, Mojave and Owens) for the Preferred Alternative on BLM land. Conservation of riparian areas and

wetlands, which co-occur with many of these hydrological resources is provided below under Natural Communities.

Playa

Playa totals approximately 163,000 acres in the Plan Area on BLM land. Overall, 47% (approximately 77,000 acres) would be conserved under the Preferred Alternative on BLM land. Existing Conservation would account for 14% of the conservation, NLCSs would account for 37%, and ACECs would account for 50%. Additionally, playas and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks. CMAs for playas would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided riparian or wetland natural communities.

Seep/Spring

There are 175 seep/spring locations in the Plan Area under the Preferred Alternative on BLM land. Overall, 77% (135 locations) of the seep/spring locations would be conserved under the Preferred Alternative on BLM land. The conservation of seep/spring under the Preferred Alternative on BLM land would be more than half in all subareas except the Imperial Borrego Valley (32%, 1 location). These include Cadiz Valley and Chocolate Mountains (95%, 5 locations), Kingston and Funeral Mountains (67%, 20 locations), Mojave and Silurian Valley (86%, 9 locations), Owens River Valley (57%, 6 locations), Panamint Death Valley (87%, 10 locations), Piute Valley and Sacramento Mountains (89%, 13 locations), Pinto Lucerne Valley and Eastern Slopes (73%, 29 locations), Providence and Bullion Mountains (95%, 18 locations), and West Mojave and Eastern Slopes (77%, 25 locations).

Overall, Existing Conservation would account for 39% of the conservation of seep/spring locations, NCLSs would account for 45%, ACECs would account for 14%, and 1% in wildlife allocations. Additionally, seeps and springs and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks. CMAs for seep/spring locations would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided wetland natural communities.

Major Rivers

Overall, 87% of the major rivers would be conserved under the Preferred Alternative on BLM land, including 90% of the Amargosa River and 81% of the Mojave River. Existing Conservation would account for 40%, NLCSs would account for 49%, and ACECs would account for 11%. Additionally, major rivers and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks.

Dune and Sand Resources

Overall, 75% (approximately 732,000 acres) of dunes and sand resources would be conserved under the Preferred Alternative on BLM land. At least 50% of dunes and sand resources would be conserved in 8 subareas in the Plan Area that contain substantial acreage of dunes and sand resources, including Cadiz Valley and Chocolate Mountains at 83% (438,000 acres), Imperial Borrego Valley at 61% (72,000 acres), Kingston and Funeral Mountains at 65% (29,000 acres), Mojave and Silurian Valley at 85% (36,000 acres), Owens River Valley at 87% (4,000 acres), Panamint and Death Valley at 54% (17,000 acres), Providence and Bullion Mountains at 66% (124,000 acres), and West Mojave and Eastern Slopes at 79% (6,900 acres). Pinto Lucerne Valley and Eastern Slopes subarea conserves less of dunes and sand resources compared to other subareas under the Preferred Alternative on BLM land at 32% (6,000 acres) conservation. Dunes and sand resources and associated Covered Species, natural communities, and ecological functions would be avoided through application of the dune avoidance and minimization CMAs.

Environmental Gradients

The conservation analysis addresses four types of environmental gradients in the Plan Area: elevation, landforms, slope, and aspect. The conservation of these four environmental gradients under the Preferred Alternative within DFAs on BLM Land would follow the same overall pattern as Plan-wide conservation.

Natural Communities

Table IV.7-72 shows the conservation to natural communities with changes to BLM LUPA Designations on BLM Land. A conservation summary by general community is provided below in comparison to Plan-wide conservation discussed in Section IV.7.3.2.1.2. Appendix R2 provides a detailed analysis of natural community conservation by ecoregion subarea.

California forest and woodlands

Overall, approximately 38,000 acres (82%) of California forest and woodlands would be conserved under the Preferred Alternative on BLM Lands, which is approximately one third of the conserved acreage of California forest and woodland compared to the Plan-wide conservation of this general community. The majority of conservation would occur in the Pinto Lucerne Valley and Eastern Slopes subarea. Conservation would primarily come from BLM LUPA conservation designations with NLCSs comprising most of the BLM LUPA conservation designations. In addition to conservation of California forest and woodlands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 11,000 acres (62%) of chaparral and coastal scrubs would be conserved under the Preferred Alternative on BLM Lands, which is more proportionally than would be conserved Plan-wide. The majority of conservation would occur in the Pinto Lucerne Valley and Eastern Slopes subarea. Conservation would primarily come from existing conservation and most of the BLM LUPA conservation designations are in ACECs. In addition to conservation of chaparral and coastal scrubs, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert conifer woodlands

Overall, approximately 41,000 acres (83%) of desert conifer woodlands would be conserved under the Preferred Alternative on BLM Lands, which is more proportionally than would be conserved Plan-wide. The majority of conservation would occur in the Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas. Conservation would primarily come from existing conservation. Most of the BLM LUPA conservation designations are in NLCSs. In addition to conservation of desert conifer woodlands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert outcrop and badlands

Overall, approximately 1,017,000 acres (85%) of desert outcrop and badlands would be conserved under the Preferred Alternative on BLM Land, which is 5% more than the proportion of available lands conserved Plan-wide. The majority of conservation would

occur in the Cadiz Valley and Chocolate Mountains and Piute Valley and Sacramento Mountains subareas. Conservation would primarily come from existing conservation and most of the BLM LUPA conservation designations are in NLCSs with no wildlife allocations designated for desert outcrop and badlands. In addition to conservation of desert outcrop and badlands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert scrubs

Overall, approximately 5,835,000 acres (83%) of desert scrubs would be conserved under the Preferred Alternative on BLM Land, which is proportionally more than the proportion of available lands conserved Plan-wide. The majority of conservation would occur in the Cadiz Valley and Chocolate Mountains, Providence and Bullion Mountains, and Kingston and Funeral Mountains subareas. Conservation would primarily come from BLM LUPA conservation designations, which are made up of mostly NLCSs. In addition to conservation of desert scrubs, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Dunes

Overall, approximately 89,000 acres (70%) of dunes would be conserved under the Preferred Alternative on BLM Land, which is 4% less than the proportion of available lands conserved Plan-wide. About half of the conservation would occur in the Imperial Borrego Valley subarea. Conservation would primarily come from BLM LUPA conservation designations, which are mostly NLCSs; there are no wildlife allocations for dunes. In addition, CMA application would require avoidance of all dunes and prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

Grasslands

Overall, approximately 23,000 acres (80%) of grasslands would be conserved under the Preferred Alternative on BLM Land, which is a much greater proportion of available lands compared to that conserved Plan-wide. The majority of conservation would occur in the Pinto Lucerne Valley and Eastern Slopes subarea. Conservation would primarily come from BLM LUPA conservation designations, which are mostly ACECs. In addition to conservation of grasslands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed

management, and fire prevention/protection to benefit these natural communities and the species they support.

Riparian

Overall, approximately 515,000 acres (80%) of riparian communities would be conserved under the Preferred Alternative on BLM Land, which is a greater proportion of available lands than is conserved Plan-wide. Most of the conservation would occur in the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas. Conservation would primarily come from BLM LUPA conservation designations, which are mostly NLCSs. In addition, CMA application would require avoidance of and setbacks from all riparian communities as well as to other CMAs that would benefit riparian communities beyond simply conservation.

Wetlands

Overall, approximately 184,000 acres (62%) of wetland communities would be conserved under the Preferred Alternative on BLM Land, which is a greater proportion of available lands than is conserved Plan-wide. Most of the conservation would occur in the West Mojave and Eastern Slopes, Cadiz Valley and Chocolate Mountains, and Kingston and Funeral Mountains subareas. Conservation would primarily come from BLM LUPA conservation designations, which are mostly ACECs. In addition, CMA application would require avoidance of and setbacks from Arid West freshwater emergent marsh and Californian warm temperate marsh/seep as well as other CMAs that would benefit riparian communities beyond simply conservation.

Table IV.7-72
BLM LUPA Conservation Analysis for
Natural Communities – Preferred Alternative

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	NLCS (acres)	ACEC (acres)	Wildlife Allocation (acres)	Total Conservation (acres)	% of Available Lands
California forest and woodland							
Californian broadleaf forest and woodland	11,000	600	300	80	8,000	9,000	86%
Californian montane conifer forest	34,000	18,000	6,000	2,000	4,000	29,000	86%

Table IV.7-72
BLM LUPA Conservation Analysis for Natural Communities – Preferred Alternative

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	NLCS (acres)	ACEC (acres)	Wildlife Allocation (acres)	Total Conservation (acres)	% of Available Lands
Chaparral and coastal scrub community (Cismontane scrub)							
Californian mesic chaparral	500	0	0	0	300	300	57%
Californian pre-montane chaparral	300	0	10	10	300	300	89%
Californian xeric chaparral	5,000	2,000	200	30	500	3,000	59%
Central and south coastal California seral scrub	20	0	0	10	0	10	76%
Central and South Coastal Californian coastal sage scrub	13,000	2,000	2,000	4,000	0	8,000	63%
Western Mojave and Western Sonoran Desert borderland chaparral	200	20	80	0	0	100	50%
Desert conifer woodlands							
Great Basin Pinyon - Juniper Woodland	50,000	27,000	11,000	3,000	600	41,000	83%
Desert outcrop and badlands							
North American warm desert bedrock cliff and outcrop	1,203,000	566,000	398,000	53,000	0	1,017,000	85%

Table IV.7-72
BLM LUPA Conservation Analysis for Natural Communities – Preferred Alternative

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	NLCS (acres)	ACEC (acres)	Wildlife Allocation (acres)	Total Conservation (acres)	% of Available Lands
Desert Scrub							
Arizonan upland Sonoran desert scrub	3,000	1,000	600	0	0	2,000	64%
Intermontane deep or well-drained soil scrub	69,000	16,000	16,000	31,000	0	63,000	91%
Intermontane seral shrubland	5,000	10	900	2,000	0	3,000	61%
Inter-Mountain Dry Shrubland and Grassland	282,000	86,000	96,000	12,000	70	194,000	69%
Intermountain Mountain Big Sagebrush Shrubland and steppe	24,000	5,000	8,000	1,000	3,000	17,000	70%
Lower Bajada and Fan Mojavean - Sonoran desert scrub	6,114,000	2,003,000	2,180,000	939,000	0	5,123,000	84%
Mojave and Great Basin upper bajada and toeslope	406,000	165,000	143,000	54,000	0	362,000	89%
Shadscale - saltbush cool semi-desert scrub	101,000	17,000	38,000	17,000	0	72,000	71%

Table IV.7-72
BLM LUPA Conservation Analysis for Natural Communities – Preferred Alternative

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	NLCS (acres)	ACEC (acres)	Wildlife Allocation (acres)	Total Conservation (acres)	% of Available Lands
Southern Great Basin semi-desert grassland	50	0	0	40	0	40	82%
Dunes							
North American warm desert dunes and sand flats	127,000	34,000	42,000	13,000	0	89,000	70%
Grassland							
California Annual and Perennial Grassland	28,000	10,000	5,000	7,000	600	23,000	81%
California annual forb/grass vegetation	1,000	0	200	500	0	700	58%
Riparian							
Madrean Warm Semi-Desert Wash Woodland/ Scrub	502,000	104,000	266,000	34,000	0	405,000	81%
Mojavean semi-desert wash scrub	11,000	1,000	3,000	5,000	0	9,000	87%
Sonoran-Coloradan semi-desert wash woodland/ scrub	122,000	28,000	61,000	7,000	0	96,000	78%
Southwestern North American riparian	400	0	80	30	200	300	72%

Table IV.7-72
BLM LUPA Conservation Analysis for Natural Communities – Preferred Alternative

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	NLCS (acres)	ACEC (acres)	Wildlife Allocation (acres)	Total Conservation (acres)	% of Available Lands
evergreen and deciduous woodland							
Southwestern North American riparian/ wash scrub	10,000	600	4,000	700	20	5,000	51%
Wetland							
Arid West freshwater emergent marsh	10	0	0	0	0	0	18%
Californian warm temperate marsh/seep	0	0	0	0	0	0	60%
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	147,000	13,000	34,000	27,000	0	74,000	51%
Open Water	700	0	60	20	0	80	13%
Playa	26,000	300	700	23,000	0	25,000	94%
Southwestern North American salt basin and high marsh	122,000	2,000	26,000	56,000	0	85,000	69%
Wetland	100	0	0	10	0	10	4%
Other Land Cover							
Agriculture	6,000	0	400	400	0	800	14%

Table IV.7-72
BLM LUPA Conservation Analysis for Natural Communities – Preferred Alternative

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	NLCS (acres)	ACEC (acres)	Wildlife Allocation (acres)	Total Conservation (acres)	% of Available Lands
Developed and Disturbed Areas	44,000	200	1,000	500	10	2,000	4%
Not Mapped	800	0	20	30	0	50	7%
Rural	3,000	0	100	90	0	200	8%
Total	**9,472,000**	**3,101,000**	**3,344,000**	**1,293,000**	**18,000**	**7,756,000**	**82%**

[1] Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on BLM-administered land

[2] Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), on BLM-administered land

Notes: Conservation acreages reported for Existing Conservation and BLM LUPA conservation designations reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Overlaps of ACECs or Wildlife Allocations with NLCS designations are reported as NLCS designations. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore, the subtotals may not sum to the total within the table.

Covered Species Habitat

Table IV.7-73 shows the conservation of Covered Species modeled habitat under the Preferred Alternative before the application of CMAs under the BLM LUPA. Generally, the percent conservation of Covered Species modeled habitat in available lands is highly variable, ranging from 20% for greater sandhill crane to 91% for triple-ribbed milk-vetch.

Much of the modeled habitats for desert tortoise and Mojave fringe-toed lizard are in the Mojave Desert in areas that are either already in Existing Conservation or occur in the ACECs and NLCSs. Flat-tailed horned lizard modeled habitat is mainly conserved in the NLCSs. Tehachapi slender salamander modeled habitat occurs in the Tehachapi Mountains where conservation is primarily composed of wildlife allocations. Furthermore, the siting of the DFAs under the Preferred Alternative largely avoids habitat for Mojave fringe-toed lizard and Tehachapi slender salamander, and CMAs require avoidance of and setbacks from riparian habitat, wetland habitat, and dune habitat would further avoid and minimize the impacts on these species.

Conservation of bird species associated primarily with wetland and riparian habitats, including California black rail, least Bell's vireo, southwestern willow flycatcher, tricolored

blackbird, western yellow-billed cuckoo, and Yuma clapper rail would be augmented by CMAs requiring avoidance of and setbacks from riparian and wetland habitats. Conservation of Bendire's thrasher occurs mainly in existing conservation and NLCSs. Burrowing owl, widespread, but mainly associated with open areas and agricultural areas, would primarily be conserved in ACECs and NLCSs.

California condor mainly occurs in the West Mojave and Eastern Slopes subarea so the majority of conservation is also in this subarea with most of the conserved acreage in NLCSs. Golden eagle modeled suitable habitat and associated conservation is widespread in the Plan Area with most of the conservation in existing conservation areas and NLCSs. Swainson's hawk is primarily associated with the West Mojave and Eastern Slopes, Imperial Borrego Valley, and Owens River Valley subareas; the majority of suitable habitat conserved is in ACECs. In addition to conservation of suitable habitat, CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs.

Most of the modeled suitable habitat for Gila woodpecker is conserved in the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas in NLCSs. Conservation of mountain plover suitable habitat in BLM LUPA conservation designations is almost entirely within the ACECs.

Conservation of suitable habitat for desert pupfish is mostly in NLCSs. Avoidance and setback provisions for managed wetlands and agricultural drains would conserve wetland and riparian features within the agricultural matrix and provide conservation benefits to desert pupfish. Conservation of suitable habitat for Owens pupfish and Owens tui chub occurs primarily in existing conservation areas and NLCSs.

Conservation of suitable habitat for bighorn sheep, both inter-mountain and mountain habitat, is widespread and is mainly in existing conservation areas and NLCSs. The siting of the DFAs under the Preferred Alternative largely avoid habitat for bighorn sheep. The total percent conservation from BLM LUPA conservation designations for burro deer (79%) and desert kit fox (81%) is primarily in existing conservation and NLCSs. Conservation of suitable habitat for Mohave ground squirrel is primarily from ACECs. Suitable habitat for the covered bat species—California leaf-nosed bat, pallid bat, and Townsend's big-eared bat—is widespread and mainly conserved in existing conservation areas and NLCSs. In addition to conservation of suitable habitat for covered mammal species, the CMAs require avoidance of and setbacks from riparian and wetland habitat that would reduce impacts on these habitats used by Mohave ground squirrel, California leaf-nosed bat, pallid bat, and Townsend's big-eared bat.

Conservation of plant species ranges from 31% of suitable habitat for Owens Valley checkerbloom to 91% of suitable habitat for triple-ribbed milk-vetch. The proportion of suitable habitat conserved in existing conservation and BLM LUPA conservation

designations varies by species. However, in addition to the conservation of modeled suitable habitat, the CMAs require surveys for plant Covered Species for all Covered Activities, and the CMAs requiring avoidance of and setbacks from occupied habitat would further reduce the impacts on these species.

In addition to conservation of suitable habitat for Covered Species, compensation CMAs would offset habitat loss for all Covered Species.

Table IV.7-73
BLM LUPA Conservation Analysis for Covered Species Habitat – Preferred Alternative

Species	Available Lands (acres)	Existing Conservation[1] (acres)	NLCS (acres)[2]	ACEC (acres)	Wildlife Allocation (acres)	Total Conservation (acres)	% of Available Lands
Amphibian/Reptile							
Agassiz's desert tortoise	5,799,000	1,869,000	2,178,000	931,000	-	4,978,000	86%
Flat-tailed horned lizard	428,000	36,000	225,000	12,000	-	272,000	64%
Mojave fringe-toed lizard	731,000	214,000	213,000	165,000	-	592,000	81%
Tehachapi slender salamander	7,000	-	700	500	5,000	6,000	83%
Bird							
Burrowing owl	1,707,000	144,000	608,000	441,000	100	1,193,000	70%
California black rail	31,000	1,000	6,000	1,000	-	8,000	27%
California condor	242,000	37,000	94,000	26,000	18,000	175,000	72%
Gila woodpecker	38,000	700	29,000	2,000	-	31,000	83%
Golden eagle–foraging	6,216,000	2,539,000	2,107,000	702,000	16,000	5,365,000	86%
Golden eagle–nesting	2,421,000	1,334,000	548,000	225,000	17,000	2,125,000	88%
Greater sandhill crane	3,000	-	400	300	-	600	20%
Least Bell's vireo	69,000	28,000	23,000	6,000	1,000	57,000	83%
Mountain plover	7,000	80	900	1,000	-	2,000	30%
Southwestern willow flycatcher	46,000	5,000	10,000	5,000	3,000	24,000	53%
Swainson's hawk	112,000	6,000	13,000	19,000	-	38,000	34%
Tricolored blackbird	13,000	5,000	2,000	3,000	200	9,000	70%

Table IV.7-73
BLM LUPA Conservation Analysis for Covered Species Habitat – Preferred Alternative

Species	Available Lands (acres)	Existing Conservation[1] (acres)	NLCS (acres)[2]	ACEC (acres)	Wildlife Allocation (acres)	Total Conservation (acres)	% of Available Lands
Western yellow-billed cuckoo	19,000	4,000	3,000	3,000	-	10,000	52%
Yuma clapper rail	5,000	30	900	400	-	1,000	24%
Fish							
Desert pupfish	500	20	300	-	-	300	56%
Owens pupfish	4,000	600	600	60	-	1,000	32%
Owens tui chub	4,000	600	600	50	-	1,000	32%
Mammal							
Bighorn sheep – inter-mountain habitat	2,243,000	785,000	807,000	297,000	1,000	1,890,000	84%
Bighorn sheep – mountain habitat	3,568,000	1,821,000	1,107,000	231,000	-	3,160,000	89%
California leaf-nosed bat	4,444,000	1,442,000	1,715,000	546,000	-	3,703,000	83%
Mohave ground squirrel	999,000	104,000	186,000	484,000	-	774,000	77%
Pallid bat	8,943,000	3,024,000	3,225,000	1,179,000	17,000	7,446,000	83%
Townsend's big-eared bat	7,599,000	2,330,000	2,701,000	1,149,000	17,000	6,197,000	82%
Plant							
Alkali mariposa-lily	2,000	-	700	-	-	700	45%
Bakersfield cactus	77,000	3,000	41,000	7,000	3,000	54,000	70%
Desert cymopterus	67,000	4,000	1,000	52,000	-	57,000	86%
Mojave monkeyflower	116,000	23,000	59,000	21,000	-	103,000	88%

Table IV.7-73
BLM LUPA Conservation Analysis for Covered Species Habitat – Preferred Alternative

Species	Available Lands (acres)	Existing Conservation[1] (acres)	NLCS (acres)[2]	ACEC (acres)	Wildlife Allocation (acres)	Total Conservation (acres)	% of Available Lands
Parish's daisy	85,000	34,000	30,000	7,000	-	71,000	83%
Triple-ribbed milk-vetch	4,000	4,000	-	-	-	4,000	91%

[1] Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on BLM-administered land

[2] Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), on BLM-administered land

Notes: Conservation acreages reported for Existing Conservation and BLM LUPA conservation designations reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Overlaps of ACECs or Wildlife Allocations with NLCS designations are reported as NLCS designations. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore, the subtotals may not sum to the total within the table.

For Agassiz's desert tortoise, desert tortoise important areas were identified that include tortoise conservation areas (TCAs), desert tortoise linkages, and desert tortoise high priority habitat (see desert tortoise BGOs in Appendix C). Table IV.7-74 provides a conservation analysis for these desert tortoise important areas, organized by desert tortoise Recovery Units: Colorado Desert, Eastern Mojave, and Western Mojave. Within the Colorado Desert Recovery Unit, 91% of TCAs, linkage habitat, and high priority habitat would be conserved under the Preferred Alternative. Within the Eastern Mojave Recovery Unit, 94% of TCAs and linkage habitat would be conserved under the Preferred Alternative. Within the Western Mojave Recovery Unit, 87% of TCAs and linkage habitat would be conserved under the Preferred Alternative. CMAs would require avoidance of TCAs, except for impacts associated with transmission or impacts in disturbed portions of TCAs. Additionally, the CMAs would prohibit impacts that affect the viability of desert tortoise linkages. Compensation CMAs would be required for impacts to desert tortoise, including desert tortoise important areas.

Table IV.7-74
BLM LUPA Conservation Analysis for Desert Tortoise Important Areas – Preferred Alternative

Recovery Unit	Desert Tortoise Important Areas	Available Lands (acres)	Existing Conservation[1] (acres)	NLCS (acres)[2]	ACEC (acres)	Wildlife Allocation (acres)	Total Conservation (acres)	% of Available Lands
Colorado Desert	High Priority Habitat	354,000	156,000	72,000	51,000	-	279,000	79%
	Linkage	406,000	126,000	98,000	150,000	-	374,000	92%
	TCA	1,728,000	454,000	1,113,000	54,000	-	1,621,000	94%
Colorado Desert Total		*2,489,000*	*735,000*	*1,284,000*	*255,000*	-	*2,274,000*	*91%*
Eastern Mojave	Linkage	728,000	418,000	215,000	28,000	-	661,000	91%
	TCA	239,000	56,000	164,000	3,000	-	224,000	94%
Eastern Mojave Total		*967,000*	*474,000*	*379,000*	*31,000*	-	*885,000*	*91%*
Western Mojave	Linkage	796,000	387,000	200,000	47,000	-	634,000	80%
	TCA	964,000	129,000	266,000	509,000	-	905,000	94%
Western Mojave Total		*1,759,000*	*517,000*	*466,000*	*556,000*	-	*1,539,000*	*87%*
Grand Total		**5,215,000**	**1,726,000**	**2,129,000**	**843,000**	**-**	**4,698,000**	**90%**

[1] Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on BLM-administered land

[2] Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), on BLM-administered land

Notes: Conservation acreages reported for Existing Conservation and BLM LUPA conservation designations reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Overlaps of ACECs or Wildlife Allocations with NLCS designations are reported as NLCS designations. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore, the subtotals may not sum to the total within the table.

For Mohave ground squirrel, Mohave ground squirrel important areas were identified that include key population centers, linkages, expansion areas, and climate change extension areas (see Mohave ground squirrel BGOs in Appendix C). Table IV.7-75 provides a conservation analysis for these Mohave ground squirrel important areas. Approximately 86% of key populations centers and 73% of linkages would be conserved under the Preferred Alternative. Expansion areas and climate change extension areas would be conserved at 90% and 67% respectively. CMAs would require protocol surveys in population centers and linkages, as well as provide other measures to offset the loss of habitat for Mohave ground squirrel. Additionally, the CMAs would prohibit impacts that affect the viability of linkages. Compensation CMAs would be required for impacts to Mohave ground squirrel, including Mohave ground squirrel important areas.

Table IV.7-75
BLM LUPA Conservation Analysis for Mohave Ground Squirrel Important Areas – Preferred Alternative

Mohave Ground Squirrel Important Area Type	Available Lands (acres)	Existing Conservation[1] (acres)	NLCS (acres)[2]	ACEC (acres)	Wildlife Allocation (acres)	Total Conservation (acres)	% of Available Lands
Key Population Center	299,000	18,000	114,000	125,000	-	258,000	86%
Linkage	280,000	24,000	36,000	144,000	-	203,000	73%
Expansion Area	282,000	45,000	53,000	157,000	-	254,000	90%
Climate Change Extension	92,000	14,000	43,000	4,000	-	62,000	67%
Total	**954,000**	**101,000**	**246,000**	**430,000**	**-**	**777,000**	**81%**

1 Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on BLM-administered land

2 Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), on BLM-administered land

Notes: Conservation acreages reported for Existing Conservation and BLM LUPA conservation designations reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Overlaps of ACECs or Wildlife Allocations with NLCS designations are reported as NLCS designations. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore, the subtotals may not sum to the total within the table.

Within the Plan Area, critical habitat has been designated by the USFWS for the following Covered Species: desert tortoise, southwestern willow flycatcher, desert pupfish, and

Parish's daisy. For desert tortoise, approximately 94% of the desert tortoise designated critical habitat on BLM-administered lands would be conserved under the Preferred Alternative, including 606,000 acres in existing conservation areas and 1,884,000 acres in BLM LUPA conservation designations. For southwestern willow flycatcher, approximately 95% of the southwestern willow flycatcher designated critical habitat on BLM-administered lands would be conserved in Reserve Design Lands under the Preferred Alternative, including 300 acres in existing conservation areas and 40 acres in BLM LUPA conservation designations. For desert pupfish, approximately 95% of the desert pupfish designated critical habitat on BLM-administered lands would be conserved in Reserve Design Lands under the Preferred Alternative, including 20 acres in existing conservation areas and 400 acres in BLM LUPA conservation designations. For Parish's daisy, approximately 93% of the Parish's daisy designated critical habitat on BLM-administered lands would be conserved in Reserve Design Lands under the Preferred Alternative, including 900 acres in BLM LUPA conservation designations.

Non-Covered Species Critical Habitat

Ten Non-Covered Species have Critical Habitat within BLM LUPA Lands. Table IV.7-76 shows the total amount of Critical Habitat and the amount within each LUPA conservation designation for Non-Covered Species. These conservation designations would be considered beneficial impacts for biological resources. All or a substantial portion of each species' Critical Habitat in the BLM LUPA Lands would be within one of the conservation designations. Critical Habitat for Pierson's milk-vetch and bighorn sheep occurs mostly within existing conservation, but mostly within National Conservation Lands for the other species. Critical Habitat for the Pierson's milk-vetch is managed under the Imperial Sand Dunes RAMP, which provides protections for critical habitat within conservation areas and areas designated as closed to motorized (e.g. off-highway vehicle) use.

Table IV.7-76
Critical Habitat Within BLM LUPA Conservation Designations for Non-Covered Species – Preferred Alternative

Common Name	Acres of Critical Habitat within BLM LUPA Lands	Existing Conservation	NLCS (acres)	ACEC (acres)	Wildlife Allocations (acres)	Total in Conservation
Amargosa nitrophila	1,000	0	1,000	0	0	1,000
Amargosa vole	4,000	1,000	2,000	0	0	3,000
Arroyo toad	30	0	0	0	0	0

Table IV.7-76
Critical Habitat Within BLM LUPA Conservation Designations for Non-Covered Species – Preferred Alternative

Common Name	Acres of Critical Habitat within BLM LUPA Lands	Existing Conservation	NLCS (acres)	ACEC (acres)	Wildlife Allocations (acres)	Total in Conservation
Ash Meadows gumplant	300	0	300	0	0	300
Cushenbury buckwheat	400	0	400	30	0	430
Cushenbury milk-vetch	900	0	800	0	0	800
Cushenbury oxytheca	80	0	80	0	0	80
Lane Mountain milk-vetch	10,000	50	8,000	2,000	0	10,050
Pierson's milk-vetch	12,000	3,000	0	9,000[2]	0	12,000
Peninsular Bighorn sheep	7,000	5,000	100	300	0	5,400

[1] NLCS and ACEC designations overlap, the entire Amargosa Valley, which contains the Amargosa vole critical habitat, is located within an ACEC.

[2] Pierson's milk-vetch are protected within areas designated as closed to motorized vehicles in the Imperial Sand Dunes RAMP. The ISDRA RAMP is not considered part of the DRECP decision area.

Note: The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore, the subtotals may not sum to the total within the table.

IV.7.3.2.3 Impacts of Natural Community Conservation Plan: Preferred Alternative

The impacts and mitigation measures for renewable energy and transmission development of the NCCP for the Preferred Alternative would be the same as those defined in Section IV.7.3.2.1 for the Plan-wide analysis.

As described in Section II.3.3 of Volume II, the NCCP would establish conservation designations within the Reserve Design Lands under each alternative. To reflect the conservation that would occur under the NCCP, the NCCP elements of each alternative define the following means of providing conservation within Reserve Design lands:

- An **NCCP Conceptual Plan-Wide Reserve Design**, which defines the areas that are considered to be the highest priority for biological conservation. These priority conservation areas include both BLM lands and other lands, including private land

and nonfederal public land. These priority conservation areas are consistent with those identified in the interagency plan-wide alternatives.

- A **DRECP NCCP Reserve Design**, which nested within the NCCP Conceptual Plan-Wide Reserve Design. The DRECP NCCP Reserve Design identifies those lands within BLM LUPA conservation designations that would be protected, maintained, and managed to preserve their conservation value for Covered Species for at least the duration of the NCCP. Within non-BLM lands, areas identified within the DRECP NCCP Reserve Design would be given a high priority for conservation through the purchase of private lands from willing sellers or placement of conservation easements on public lands. BLM lands and non-BLM Lands included in the DRECP NCCP Reserve Design would receive long-term protection and would be conserved and managed to preserve and enhance habitat for Covered Species.
- **Other conservation actions**, which would occur outside of the DRECP NCCP Reserve Design and NCCP Conceptual Plan-Wide Reserve Design and include the maintenance and management of all of the BLM LUPA conservation designation lands in accordance with the BLM LUPA conservation designations.

The following provides the conservation analysis for the NCCP.

Landscape

Habitat Linkages

Table IV.7-77 shows the conservation of the desert linkage network under the Preferred Alternative for the NCCP. Conservation of the desert linkage network totals more than 2.6 million acres (71%). Approximately 220,000 acres of the desert linkage network would be inside the DRECP NCCP Reserve Design (181,000 acres on BLM Land and 39,000 acres on non-BLM land). Approximately 661,000 acres of the desert linkage network would be inside the NCCP Conceptual Plan-Wide Reserve Design and 1,213,000 acres would be outside the NCCP Conceptual Plan-Wide Reserve Design. In addition to conservation of the desert linkage network, CMAs provide for the avoidance and minimization of certain linkages in the DFAs (see Section IV.7.3.2.2.1).

Table IV.7-77
NCCP Conservation Analysis for the Desert Linkage Network – Preferred Alternative

Desert Linkage Network by Ecoregion Subarea	Existing Conservation (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the DRECP NCCP Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Cadiz Valley and Chocolate Mountains	187,000	36,000	11,000	7,000	37,000	392,000	11,000	681,000
Imperial Borrego Valley	14,000	-	28,000	-	800	73,000	900	116,000
Kingston and Funeral Mountains	28,000	-	-	-	-	107,000	3,000	138,000
Mojave and Silurian Valley	179,000	-	52,000	-	15,000	135,000	7,000	389,000
Owens River Valley	40	-	11,000	-	3,000	60	20	14,000
Panamint Death Valley	109,000	20	32,000	-	2,000	43,000	700	186,000
Pinto Lucerne Valley and Eastern Slopes	16,000	55,000	31,000	15,000	7,000	28,000	4,000	155,000
Piute Valley and Sacramento Mountains	14,000	-	-	-	2,000	92,000	2,000	110,000
Providence and Bullion Mountains	144,000	-	300	-	50	213,000	9,000	366,000

Table IV.7-77
NCCP Conservation Analysis for the Desert Linkage Network – Preferred Alternative

Desert Linkage Network by Ecoregion Subarea	Existing Conservation (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the DRECP NCCP Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
West Mojave and Eastern Slopes	45,000	89,000	131,000	17,000	81,000	70,000	22,000	456,000
Grand Total	**736,000**	**181,000**	**295,000**	**39,000**	**148,000**	**1,153,000**	**60,000**	**2,612,000**

Notes: Conservation acreages reported reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore, the subtotals may not sum to the total within the table.

Hydrological Resources

A conservation analysis for hydrological resources is provided below, including playa, seep/spring, and the four major rivers in the Plan Area (i.e., Amargosa, Colorado, Mojave and Owens) for the Preferred Alternative under the NCCP. Conservation of riparian areas and wetlands, which co-occur with many of these hydrological resources is provided below under Natural Communities.

Playa

Overall, approximately 173,000 acres would be conserved under the Preferred Alternative under the NCCP. Approximately 600 acres are within the DRECP NCCP Reserve Design (approximately 300 on BLM land and approximately 300 acres on non-BLM land). Approximately 4,000 acres of the playa acreage conserved is inside NCCP Conceptual Plan-Wide Reserve Design and approximately 75,000 acres are outside the NCCP Conceptual Plan-Wide Reserve Design. Additionally, playas and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks. CMAs for playas would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided riparian or wetland natural communities.

Seep/Spring

Overall, 306 locations of the seep/spring locations would be conserved under the Preferred Alternative under the NCCP. Approximately 16 seep/spring locations are within the DRECP NCCP Reserve Design (9 on BLM land and 7 on non-BLM land). Approximately 44 seep/spring locations are inside NCCP Conceptual Plan-Wide Reserve Design and approximately 71 seep/spring locations are outside the NCCP Conceptual Plan-Wide Reserve Design. Seeps and springs and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks. CMAs for seep/spring locations would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided wetland natural communities.

Major Rivers

None of the major rivers are conserved within the DRECP NCCP Reserve Design. Approximately 673,000 feet of the major rivers (Amargosa, Colorado, and Mojave) are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 126,000 feet of the Amargosa River are conserved outside the NCCP Conceptual Plan-Wide Reserve

Design. Major rivers and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks.

Dune and Sand Resources

Approximately half of the dunes and sand resources would be conserved in existing conservation areas under the NCCP. Approximately 16,000 acres are within the DRECP NCCP Reserve Design (approximately 13,000 acres on BLM land and approximately 3,000 acres on non-BLM land). Approximately 81,000 acres of the dunes and sand resources are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 453,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. Dunes and sand resources and associated Covered Species, natural communities, and ecological functions would be avoided through application of the dune avoidance and minimization CMAs.

Environmental Gradients

The conservation analysis addresses four types of environmental gradients in the Plan Area: elevation, landforms, slope, and aspect. The conservation of these four environmental gradients under the Preferred Alternative under the NCCP would follow the same overall pattern as Plan-wide conservation.

Natural Communities

Table IV.7-78 shows the conservation to natural communities under the NCCP. A conservation summary by general community is provided below in comparison to Plan-wide conservation discussed in Section IV.7.3.2.1.2.

California forest and woodlands

Overall, approximately 62,000 acres (41%) of California forest and woodlands would be conserved under the Preferred Alternative under the NCCP. Approximately 2,000 acres are within the DRECP NCCP Reserve Design (approximately 2,000 acres on BLM land and approximately 200 acres on non-BLM land). Approximately 2,000 acres of California forest and woodlands are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 34,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. In addition to conservation of California forest and woodlands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 31,000 acres (28%) of chaparral and coastal scrubs would be conserved under the Preferred Alternative under the NCCP. Approximately 3,000 acres are within the DRECP NCCP Reserve Design (approximately 2,000 acres on BLM land and approximately 1,000 acres on non-BLM land). Approximately 6,000 acres of chaparral and coastal scrubs are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 10,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. In addition to conservation of chaparral and coastal scrubs, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert conifer woodlands

Overall, approximately 186,000 acres (65%) of desert conifer woodlands would be conserved under the Preferred Alternative under the NCCP. Approximately 2,000 acres are within the DRECP NCCP Reserve Design (approximately 2,000 acres on BLM land and approximately 300 acres on non-BLM land). Approximately 3,000 acres of desert conifer woodlands are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 23,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. In addition to conservation of desert conifer woodlands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert outcrop and badlands

Overall, approximately 1,295,000 acres (80%) of desert outcrop and badlands would be conserved under the Preferred Alternative under the NCCP. Approximately 14,000 acres are within the DRECP NCCP Reserve Design (approximately 12,000 acres on BLM land and approximately 2,000 acres on non-BLM land). Approximately 80,000 acres of desert outcrop and badlands are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 412,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. In addition to conservation of desert outcrop and badlands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert scrubs

Overall, approximately 9,729,000 acres (74%) of desert scrubs would be conserved under the Preferred Alternative under the NCCP. Approximately 315,000 acres are within the DRECP NCCP Reserve Design (approximately 250,000 acres on BLM land and approximately 65,000 acres on non-BLM land). Approximately 1,284,000 acres of desert scrubs are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 2,816,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. In addition to conservation of desert scrubs, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Dunes

Overall, approximately 209,000 acres (74%) of dunes would be conserved under the Preferred Alternative under the NCCP. Approximately 500 acres are within the DRECP NCCP Reserve Design (approximately 200 acres on BLM land and approximately 300 acres on non-BLM land). Approximately 26,500 acres of dunes are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 35,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. In addition, CMA application would require avoidance of all dunes and prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

Grasslands

Overall, approximately 54,000 acres (22%) of grasslands would be conserved under the Preferred Alternative under the NCCP. Approximately 5,700 acres are within the DRECP NCCP Reserve Design (approximately 5,000 acres on BLM land and approximately 700 acres on non-BLM land). Approximately 13,700 acres of grasslands are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 17,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. In addition to conservation of grasslands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Riparian

Overall, approximately 715,000 acres (72%) of riparian communities would be conserved under the Preferred Alternative under the NCCP. Approximately 11,000 acres are within the DRECP NCCP Reserve Design (approximately 9,000 acres on BLM land

and approximately 2,000 acres on non-BLM land). Approximately 91,000 acres of riparian are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 346,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. In addition, CMA application would require avoidance of and setbacks from all riparian communities as well as to other CMAs that would benefit riparian communities beyond simply conservation.

Wetlands

Overall, approximately 433,000 acres (50%) of wetland communities would be conserved under the Preferred Alternative under the NCCP. Approximately 22,000 acres are within the DRECP NCCP Reserve Design (approximately 16,000 acres on BLM land and approximately 6,000 acres on non-BLM land). Approximately 76,000 acres of wetlands are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 169,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. In addition, CMA application would require avoidance of and setbacks from Arid West freshwater emergent marsh and Californian warm temperate marsh/seep as well as other CMAs that would benefit riparian communities beyond simply conservation.

Table IV.7-78
NCCP Conservation Analysis for Natural Communities – Preferred Alternative

Natural Community	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
California forest and woodland								
Californian broadleaf forest and woodland	1,000	0	30	0	10	9,000	10,000	20,000
Californian montane conifer forest	25,000	2,000	90	200	30	9,000	6,000	42,000
Chaparral and coastal scrub community (Cismontane scrub)								
Californian mesic chaparral	20	0	0	0	0	300	600	900
Californian pre-montane chaparral	0	0	0	0	0	300	200	500
Californian xeric chaparral	3,000	30	10	0	10	700	3,000	7,000

Table IV.7-78
NCCP Conservation Analysis for Natural Communities – Preferred Alternative

Natural Community	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Central and south coastal California seral scrub	0	0	0	0	0	10	30	40
Central and South Coastal Californian coastal sage scrub	2,000	2,000	2,000	1,000	700	2,000	2,000	12,000
Western Mojave and Western Sonoran Desert borderland chaparral	9,000	0	0	0	0	80	900	10,000
Desert conifer woodlands								
Great Basin Pinyon - Juniper Woodland	159,000	2,000	500	300	200	12,000	11,000	186,000

Table IV.7-78
NCCP Conservation Analysis for Natural Communities – Preferred Alternative

Natural Community	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Desert outcrop and badlands								
North American warm desert bedrock cliff and outcrop	802,000	12,000	44,000	2,000	22,000	395,000	17,000	1,295,000
Desert Scrub								
Arizonan upland Sonoran desert scrub	44,000	0	0	0	400	2,000	400	47,000
Intermontane deep or well-drained soil scrub	30,000	13,000	27,000	2,000	2,000	8,000	2,000	82,000
Intermontane seral shrubland	1,000	2,000	800	500	1,000	700	1,000	7,000
Inter-Mountain Dry Shrubland and Grassland	110,000	22,000	30,000	2,000	7,000	56,000	11,000	238,000

Table IV.7-78
NCCP Conservation Analysis for Natural Communities – Preferred Alternative

Natural Community	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Intermountain Mountain Big Sagebrush Shrubland and steppe	9,000	0	200	0	200	12,000	7,000	28,000
Lower Bajada and Fan Mojavean - Sonoran desert scrub	4,561,000	180,000	582,000	58,000	262,000	2,363,000	132,000	8,137,000
Mojave and Great Basin upper bajada and toeslope	838,000	34,000	38,000	3,000	8,000	126,000	25,000	1,071,000
Shadscale - saltbush cool semi-desert scrub	38,000	40	2,000	10	8,000	52,000	17,000	118,000

Table IV.7-78
NCCP Conservation Analysis for Natural Communities – Preferred Alternative

Natural Community	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Southern Great Basin semi-desert grassland	0	0	0	0	0	40	0	40
Dunes								
North American warm desert dunes and sand flats	146,000	200	24,000	300	2,000	30,000	5,000	209,000
Grassland								
California Annual and Perennial Grassland	23,000	5,000	2,000	700	5,000	6,000	9,000	52,000
California annual forb/grass vegetation	400	80	400	60	300	200	200	2,000
Riparian								
Madrean Warm Semi-Desert Wash Woodland/Scrub	195,000	200	27,000	20	23,000	273,000	8,000	526,000

Table IV.7-78
NCCP Conservation Analysis for Natural Communities – Preferred Alternative

Natural Community	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Mojavean semi-desert wash scrub	7,000	700	4,000	300	2,000	4,000	1,000	18,000
Sonoran-Coloradan semi-desert wash woodland/scrub	70,000	8,000	7,000	2,000	4,000	53,000	2,000	146,000
Southwestern North American riparian evergreen and deciduous woodland	500	10	10	50	1,000	300	500	3,000
Southwestern North American riparian/wash scrub	7,000	0	4,000	0	8,000	800	2,000	22,000
Wetland								
Arid West freshwater emergent marsh	40	0	0	0	800	0	400	1,000

Table IV.7-78
NCCP Conservation Analysis for Natural Communities – Preferred Alternative

Natural Community	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Californian warm temperate marsh/seep	0	0	0	0	0	0	80	80
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	136,000	300	4,000	200	800	57,000	4,000	202,000
Open Water	23,000	0	20	0	2,000	60	23,000	48,000
Playa	400	0	0	0	2,000	24,000	10,000	36,000
Southwestern North American salt basin and high marsh	31,000	15,000	26,000	5,000	18,000	41,000	9,000	145,000
Wetland	30	0	0	200	30	10	400	700
Other Land Cover								
Agriculture	6,000	80	600	400	3,000	100	2,000	12,000
Developed and Disturbed Areas	3,000	30	300	20	200	1,000	2,000	7,000

Table IV.7-78
NCCP Conservation Analysis for Natural Communities – Preferred Alternative

Natural Community	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Not Mapped	200	0	40	0	200	10	300	800
Rural	900	10	80	100	2,000	200	10,000	13,000
Total	**7,279,000**	**298,000**	**824,000**	**78,000**	**388,000**	**3,541,000**	**337,000**	**12,745,000**

[1] Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs)

Notes: Conservation acreages reported reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore, the subtotals may not sum to the total within the table.

Covered Species Habitat

Table IV.7-79 shows the conservation of Covered Species modeled habitat under the Preferred Alternative before the application of CMAs under the NCCP. Generally, the percent conservation of Covered Species modeled habitat in available lands is highly variable, ranging from 1% for greater sandhill crane (primarily found in agricultural areas) to 84% for bighorn sheep mountain habitat.

None of the modeled habitat for flat-tailed horned lizard and Tehachapi slender salamander is inside the DRECP NCCP Reserve Design. Less than 5% each of the total suitable habitats for Agassiz's desert tortoise and Mojave fringe-toed lizard are inside the DRECP NCCP Reserve Design. None of the suitable habitat for Tehachapi slender salamander is inside the NCCP Conceptual Plan-Wide Reserve Design. Flat-tailed horned lizard is the only amphibian/reptile species with a substantial acreage of suitable habitat inside the NCCP Conceptual Plan-Wide Reserve Design. About half of the conserved suitable habitat for Mojave fringe-toed lizard is outside the NCCP Conceptual Plan-Wide Reserve Design. Almost all of the conserved suitable habitat for Tehachapi slender salamander is outside the NCCP Conceptual Plan-Wide Reserve Design. Furthermore, the siting of the DFAs under the Preferred Alternative largely avoids habitat for Mojave fringe-toed lizard and Tehachapi slender salamander, and CMAs require avoidance of and setbacks from riparian habitat, wetland habitat, and dune habitat would further avoid and minimize the impacts on these species.

California condor has the greatest proportion of its conserved suitable habitat conserved inside the DRECP NCCP Reserve Design compared to other bird species, including California black rail, greater sandhill crane, and Yuma clapper rail, which have no suitable habitat conserved inside the DRECP NCCP Reserve Design. Conservation of bird species habitat conserved inside the NCCP Conceptual Plan-Wide Reserve Design ranges from 6% of conserved suitable golden eagle nesting habitat to 47% of tricolored blackbird conserved suitable habitat. Conservation outside of the NCCP Conceptual Plan-Wide Reserve Design ranges from 2% of conserved greater sandhill crane suitable modeled habitat to 67% of conserved Gila woodpecker suitable modeled habitat. Conservation of bird species associated primarily with wetland and riparian habitats (i.e., California black rail, least Bell's vireo, southwestern willow flycatcher, tricolored blackbird, western yellow-billed cuckoo, and Yuma clapper rail) would be augmented by CMAs requiring avoidance of and setbacks from riparian and wetland habitats. In addition to conservation of suitable habitat, CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs.

None of the modeled suitable habitat for fish species is inside the DRECP NCCP Reserve Design. Approximately 10% of the modeled suitable habitat for desert pupfish and Mojave tui chub is inside the NCCP Conceptual Plan-Wide Reserve Design. While 50% of the

conserved suitable habitat for desert pupfish is outside of the NCCP Conceptual Plan-Wide Reserve Design, none of the conserved suitable habitat for Mohave tui chub is outside of the NCCP Conceptual Plan-Wide Reserve Design with the remaining conserved acreage in existing conservation areas. About 60% of the conserved suitable habitat for Owens pupfish and Owens tui chub is inside the NCCP Conceptual Plan-Wide Reserve Design and 18% is outside. Avoidance and setback provisions for managed wetlands and agricultural drains would conserve wetland and riparian features within the agricultural matrix and provide conservation benefits to desert pupfish.

Only 1–3% of the conserved suitable habitat for bat Covered Species and bighorn sheep is inside the DRECP NCCP Reserve Design while 14% of conserved suitable habitat for Mohave ground squirrel is inside the DRECP NCCP Reserve Design. There is also 60% of the conserved suitable habitat for Mohave ground squirrel inside the NCCP Conceptual Plan-Wide Reserve Design (22% outside). Conserved suitable habitat for bat Covered Species are 6-13% inside the NCCP Conceptual Plan-Wide Reserve Design (30-38% outside). Approximately 5-7% of the conserved suitable habitat for bighorn sheep (inter-mountain and mountain habitat) is inside the NCCP Conceptual Plan-Wide Reserve Design while 22-32% is outside of it. The siting of the DFAs under the Preferred Alternative largely avoid habitat for bighorn sheep. In addition to conservation of suitable habitat for covered mammal species, the CMAs require avoidance of and setbacks from riparian and wetland habitat that would reduce impacts on these habitats used by Mohave ground squirrel, California leaf-nosed bat, pallid bat, and Townsend's big-eared bat.

Conservation of suitable habitat for plant species inside the DRECP NCCP Reserve Design ranges from 0% for triple-ribbed milk-vetch to 38% for Barstow woolly sunflower. Conservation of suitable habitat for plant species inside the NCCP Conceptual Plan-Wide Reserve Design ranges from 0% for triple-ribbed milk-vetch to 90% for Barstow woolly sunflower. In addition to the conservation of modeled suitable habitat, the CMAs require surveys for plant Covered Species for all Covered Activities, and the CMAs requiring avoidance of and setbacks from occupied habitat would further reduce the impacts on these species.

In addition to conservation of suitable habitat for Covered Species, compensation CMAs would offset habitat loss for all Covered Species.

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Table IV.7-79
NCCP Conservation Analysis for Covered Species Habitat – Preferred Alternative

Species	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservotion Designotions*	*Biologicol Conservotion Plonning Areos on Non-BLM Lands*	
Amphibion/Reptile								
Agassiz's desert tortoise	3,711,000	202,000	468,000	64,000	297,000	2,439,000	143,000	7,324,000
Flat-tailed horned lizard	151,000	-	223,000	-	23,000	13,000	4,000	414,000
Mojave fringe-toed lizard	403,000	12,000	7,000	2,000	5,000	359,000	20,000	808,000
Tehachapi slender salamander	300	-	-	-	-	6,000	7,000	13,000
Bird								
Bendire's thrasher	1,196,000	54,000	39,000	12,000	8,000	299,000	40,000	1,648,000
Burrowing owl	479,000	126,000	414,000	41,000	261,000	510,000	109,000	1,941,000
California black rail	21,000	-	5,000	-	5,000	2,000	2,000	36,000
California condor	81,000	40,000	23,000	8,000	10,000	75,000	63,000	300,000
Gila woodpecker	10,000	-	2,000	-	3,000	29,000	300	44,000
Golden eagle–foraging	5,518,000	216,000	397,000	41,000	161,000	2,219,000	144,000	8,696,000
Golden eagle–nesting	2,689,000	66,000	128,000	10,000	28,000	599,000	77,000	3,597,000
Greater sandhill crane	6,000	-	600	-	2,000	50	100	8,000
Least Bell's vireo	86,000	1,000	5,000	900	14,000	24,000	9,000	140,000
Mountain plover	7,000	200	1,000	600	7,000	500	6,000	23,000
Southwestern willow flycatcher	18,000	2,000	10,000	200	19,000	7,000	13,000	69,000
Swainson's hawk	24,000	5,000	14,000	700	41,000	13,000	51,000	148,000
Tricolored blackbird	11,000	2,000	800	300	9,000	2,000	9,000	33,000
Western yellow-billed cuckoo	15,000	20	2,000	-	21,000	3,000	8,000	49,000
Yuma clapper rail	10,000	-	600	-	2,000	700	400	13,000
Fish								
Desert pupfish	900	-	90	-	10	200	300	1,000
Mohave tui chub	200	-	-	-	20	-	-	200
Owens pupfish	600	-	600	-	3,000	60	1,000	6,000
Owens tui chub	700	-	600	-	3,000	60	1,000	6,000
Mammal								
Bighorn sheep – inter-mountain habitat	1,904,000	44,000	117,000	9,000	32,000	946,000	44,000	3,096,000
Bighorn sheep – mountain habitat	4,085,000	71,000	131,000	20,000	34,000	1,139,000	79,000	5,560,000
California leaf-nosed bat	3,138,000	63,000	185,000	11,000	77,000	2,020,000	96,000	5,591,000
Mohave ground squirrel	216,000	136,000	324,000	40,000	229,000	210,000	64,000	1,219,000

Table IV.7-79
NCCP Conservation Analysis for Covered Species Habitat – Preferred Alternative

Species	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designatians*	*Bialogical Canservatian Planning Areas an Nan-BLM Lands*	
Pallid bat	6,836,000	272,000	781,000	71,000	363,000	3,377,000	261,000	11,960,000
Townsend's big-eared bat	5,879,000	241,000	702,000	56,000	314,000	2,932,000	274,000	10,399,000
Plant								
Alkali mariposa-lily	200	700	10	70	30	-	8,000	9,000
Bakersfield cactus	20,000	21,000	600	1,000	900	30,000	11,000	85,000
Barstow woolly sunflower	3,000	25,000	28,000	9,000	18,000	2,000	3,000	89,000
Desert cymopterus	7,000	1,000	41,000	1,000	33,000	11,000	10,000	105,000
Little San Bernardino Mountains linanthus	87,000	10,000	-	4,000	-	26,000	9,000	136,000
Mojave monkeyflower	27,000	7,000	69,000	2,000	11,000	3,000	300	120,000
Mojave tarplant	48,000	23,000	18,000	2,000	6,000	36,000	7,000	141,000
Owens Valley checkerbloom	13,000	300	1,000	10	11,000	3,000	12,000	40,000
Parish's daisy	82,000	13,000	90	4,000	60	23,000	5,000	129,000
Triple-ribbed milk-vetch	5,000	-	-	-	-	-	400	5,000

[1] Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs)

Notes: Conservation acreages reported reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore, the subtotals may not sum to the total within the table.

For Agassiz's desert tortoise, desert tortoise important areas were identified that include tortoise conservation areas (TCAs), desert tortoise linkages, and desert tortoise high priority habitat (see desert tortoise BGOs in Appendix C). Table IV.7-80 provides a conservation analysis for these desert tortoise important areas under the NCCP, organized by desert tortoise Recovery Units: Colorado Desert, Eastern Mojave, and Western Mojave. Overall, approximately 236,000 acres of the desert tortoise important areas are inside the DRECP NCCP Reserve Design (178,000 acres on BLM land and 58,000 acres on non-BLM land). Approximately 909,000 acres of desert tortoise important areas are inside the NCCP Conceptual Plan-Wide Reserve Design and 2,448,000 acres are outside of it. CMAs would require avoidance of TCAs, except for impacts associated with transmission or impacts in disturbed portions of TCAs. Additionally, the CMAs would prohibit impacts that affect the viability of desert tortoise linkages. Compensation CMAs would be required for impacts to desert tortoise, including desert tortoise important areas.

For Mohave ground squirrel, Mohave ground squirrel important areas were identified that include key population centers, linkages, expansion areas, and climate change extension areas (see Mohave ground squirrel BGOs in Appendix C). Table IV.7-81 provides a conservation analysis for these Mohave ground squirrel important areas under the NCCP. Approximately 181,000 acres of the Mohave ground squirrel important areas are inside the DRECP NCCP Reserve Design (144,000 acres on BLM land and 37,000 acres on non-BLM land). Approximately 641,000 acres of Mohave ground squirrel important areas are inside the NCCP Conceptual Plan-Wide Reserve Design and 292,000 acres are outside of it. The CMAs would prohibit impacts that affect the viability of linkages. Compensation CMAs would be required for impacts to Mohave ground squirrel, including Mohave ground squirrel important areas.

Table IV.7-80
NCCP Conservation Analysis for Desert Tortoise Important Areas – Preferred Alternative

Recovery Unit	Desert Tortoise Important Areas	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
			Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Colorado Desert	High Priority Habitat	157,000	22,000	-	5,000	-	101,000	5,000	290,000
	Linkage	126,000	12,000	-	1,000	-	236,000	11,000	387,000
	TCA	1,544,000	39,000	6,000	6,000	50,000	1,121,000	34,000	2,801,000
Colorado Desert Total		*1,827,000*	*74,000*	*6,000*	*12,000*	*50,000*	*1,459,000*	*50,000*	*3,478,000*
Eastern Mojave	Linkage	421,000	-	-	-	-	243,000	8,000	672,000
	TCA	1,758,000	-	-	-	-	168,000	13,000	1,938,000
Eastern Mojave Total		*2,179,000*	-	-	-	-	*410,000*	*21,000*	*2,610,000*
Western Mojave	Linkage	391,000	36,000	28,000	16,000	20,000	183,000	20,000	694,000
	TCA	1,061,000	68,000	422,000	31,000	147,000	285,000	20,000	2,034,000
Western Mojave Total		*1,452,000*	*104,000*	*450,000*	*46,000*	*167,000*	*468,000*	*40,000*	*2,728,000*
Grand Total		**5,458,000**	**178,000**	**456,000**	**58,000**	**217,000**	**2,337,000**	**111,000**	**8,816,000**

[1] Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs)

Notes: Conservation acreages reported reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore, the subtotals may not sum to the total within the table.

Table IV.7-81
NCCP Conservation Analysis for Mohave Ground Squirrel Important Areas – Preferred Alternative

Mohave Ground Squirrel Important Area Type	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Key Population Center	47,000	86,000	74,000	20,000	40,000	79,000	11,000	358,000
Linkage	30,000	17,000	93,000	8,000	37,000	70,000	4,000	258,000
Expansion Area	77,000	27,000	112,000	9,000	94,000	71,000	5,000	394,000
Climate Change Extension	28,000	14,000	30	500	9,000	33,000	19,000	104,000
Total	**181,000**	**144,000**	**279,000**	**37,000**	**181,000**	**252,000**	**40,000**	**1,115,000**

[1] Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs)

Notes: Conservation acreages reported reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore, the subtotals may not sum to the total within the table.

IV.7.3.2.4 Impacts of General Conservation Plan: Preferred Alternative

IV.7.3.2.4.1 General Conservation Plan Impacts and Mitigation Measures from Renewable Energy and Transmission Development

The impacts of the GCP for the Preferred Alternative would be similar to those defined in Section IV.7.3.2.1 for the Plan-wide analysis, but they would occur on nonfederal lands only. On nonfederal lands under the GCP, the Preferred Alternative includes DFAs (approximately 1,632,000 acres) and transmission corridors where approximately 114,000 acres of ground disturbance related impacts and operational impacts would occur.

Impact BR-1: Siting, construction, decommissioning, and operational activities would result in loss of native vegetation.

Table IV.7-82 shows the impacts to natural communities under the Preferred Alternative under the GCP. An effects summary by general community is provided below in relation to the Plan-wide effects analysis provided in Section IV.7.3.2.1.1. Appendix R2 provides a detailed analysis of natural community effects by ecoregion subarea.

<u>California forest and woodlands</u>

Overall, approximately 80 acres (0.1%) of California forest and woodlands would be impacted under the Preferred Alternative within the GCP. Most of the impacts are from solar development in the West Mojave and Eastern Slopes subarea. The same CMAs that would be applied Plan-wide to reduce impacts to this general community and the plant and wildlife species it supports would also be applied under the GCP. This includes CMAs that address breeding or roosting species (AM-DFA-BAT-1, AM-RES-RL-BAT-1, and AM-RES-RL-BAT-2), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs would offset that effect (COMP-1 and COMP-2).

<u>Chaparral and coastal scrubs (Cismontane scrub)</u>

Overall, approximately 1,000 acres (1.5%) of chaparral and coastal scrubs would be impacted under the Preferred Alternative within the GCP Area. Most of the impacts are from solar development in the West Mojave and Eastern Slopes subarea, but there would also be impacts in the Pinto Lucerne Valley and Eastern Slopes. The same CMAs that would be applied Plan-wide to reduce impacts to this general community and the plant and wildlife species it supports would also be applied under the GCP. This includes CMAs that address breeding, nesting, or roosting species (AM-DFA-BAT-1, AM-RES-RL-BAT-1, AM-RES-RL-BAT-2, AM-DFA-PLANT-1 through AM-DFA-PLANT-3, and AM-RES-RL-PLANT-1 through AM-RES-RL-PLANT-3), soil resources (AM-PW-10), weed management (AM-PW-

11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs would offset that effect (COMP-1 and COMP-2).

Desert conifer woodlands

Overall, approximately 900 acres (0.9%) of desert conifer woodlands would be impacted under the Preferred Alternative under the GCP. Most of the impacts are from solar development in the West Mojave and Eastern Slopes subarea, but there would also be impacts in the Pinto Lucerne Valley and Eastern Slopes that would come mostly from transmission. There would also be wind and transmission effects in the West Mojave and Eastern Slopes subarea. The same CMAs that would be applied Plan-wide to reduce impacts to this general community and the plant and wildlife species it supports would also be applied under the GCP. This includes CMAs that address breeding or roosting species (AM-DFA-BAT-1, AM-RES-RL-BAT-1, and AM-RES-RL-BAT-2), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs would offset that effect (COMP-1 and COMP-2).

Desert outcrop and badlands

Overall, approximately 1,000 acres (0.5%) of desert outcrop and badlands would be impacted under the Preferred Alternative under the GCP. Most of the impacts would be in the Imperial Borrego Valley subarea, but the Cadiz Valley and Chocolate Mountains would also have approximately 300 acres of impacts to desert outcrop and badlands. About a total of 50 acres of impacts to desert outcrop and badlands would occur in other subareas. The same CMAs that would be applied Plan-wide to reduce impacts to this general community and the plant and wildlife species it supports would also be applied under the GCP. This includes CMAs that address breeding, nesting, or roosting species (AM-DFA-BAT-1, AM-RES-RL-BAT-1, and AM-RES-RL-BAT-2), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs would offset that effect (COMP-1 and COMP-2).

Desert scrubs

Overall, approximately 45,000 acres (1.5%) of desert scrubs would be impacted under the Preferred Alternative under the GCP. Most of the impacts to desert scrubs under the GCP are in the West Mojave and Eastern Slopes subarea, but impacts occur in all subareas except for Panamint Death Valley and Piute Valley and Sacramento Mountains. The same CMAs that would be applied Plan-wide to reduce impacts to this general community and the plant and wildlife species it supports would also be applied under the GCP. These include avoidance, setbacks, and/or suitable habitat impact caps for flat-tailed horned lizard (AM-RES-RL-ICS-8

and AM-RES-ICS-9), desert tortoise (AM-RES-RL-ICS-1 through AM-RES-RL-ICS-4), Mohave ground squirrel (AM-DFA-ICS-36 through AM-DFA-ICS-40), bat Covered Species (AM-RES-RL-BAT-1 and AM-RES-RL-BAT-2), and plant Covered Species (AM-DFA-PLANT-1 through AM-DFA-PLANT-3, and AM-RES-RL-PLANT-1 through AM-RES-RL-PLANT-3). Furthermore, soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) CMAs would be implemented that would help avoid and minimize these effects and compensation CMAs would offset the effect (COMP-1 and COMP-2).

Dunes

Application of the CMAs would require avoidance of dune communities to the maximum extent feasible in DFAs so there would be no impacts to dunes under the GCP. In addition, the same CMAs that would be applied Plan-wide to reduce impacts to this general community and the plant and wildlife species it supports would also be applied under the GCP. This includes the implementation of dune avoidance and minimization CMAs (AM-DFA-DUNE-1 through AM-DFA-DUNE-3, and AM-RES-RL-DUNE-1 through AM-RES-RL-DUNE-3) as well as compensation CMAs that would offset any unavoidable impacts (COMP-1 and COMP-2).

Grasslands

Overall, approximately 6,000 acres (2.9%) of grasslands would be impacted under the Preferred Alternative under the GCP. Most impacts are from solar development in the West Mojave and Eastern Slope subarea, but impacts would also occur from wind development and transmission and occur in the Cadiz Valley and Chocolate Mountains, Mojave and Silurian Valley, and Pinto Lucerne Valley and Eastern Slopes subareas. In addition, the same CMAs that would be applied Plan-wide to reduce impacts to this general community and the plant and wildlife species it supports would also be applied under the GCP. This includes CMAs that address breeding, nesting, or roosting species (AM-DFA-AG-2), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs would offset that effect (COMP-1 and COMP-2).

Riparian

Application of the CMAs would require avoidance of riparian communities to the maximum extent feasible in DFAs so there would be no impacts to riparian communities under the GCP. In addition, the same CMAs that would be applied Plan-wide to reduce impacts to this general community and the plant and wildlife species it supports would also be applied under the GCP. This includes CMAs for avoidance and minimization from riparian habitat and the Covered Species associated with riparian habitat (AM-DFA-

RIPWET-1 through AM-DFA-RIPWET-9) as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

Wetlands

Overall, approximately 5,000 acres (1.4%) of wetlands would be impacted under the Preferred Alternative under the GCP. Impacts would be mostly from renewable energy development on open water at the Salton Sea in the Imperial Borrego Valley subarea. The same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied under the GCP, including avoidance of Arid West freshwater emergent marsh and Californian warm temperate marsh/seep (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9) as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

Table IV.7-82
GCP Impact Analysis for Natural Communities – Preferred Alternative

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
California forest and woodland						
Californian broadleaf forest and woodland	61,000	30	0	0	0	30
Californian montane conifer forest	44,000	40	10	0	0	50
Chaparral and coastal scrub community (Cismontane scrub)						
Californian mesic chaparral	3,000	0	0	0	0	0
Californian pre-montane chaparral	1,000	0	0	0	0	0
Californian xeric chaparral	19,000	0	0	0	10	20
Central and south coastal California seral scrub	1,000	20	0	0	0	20
Central and South Coastal Californian coastal sage scrub	42,000	900	100	0	100	1,000
Western Mojave and Western Sonoran Desert borderland chaparral	15,000	0	0	0	20	20

Table IV.7-82
GCP Impact Analysis for Natural Communities – Preferred Alternative

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Desert conifer woodlands						
Great Basin Pinyon - Juniper Woodland	104,000	700	100	0	100	900
Desert outcrop and badlands						
North American warm desert bedrock cliff and outcrop	220,000	500	10	100	500	1,000
Desert Scrub						
Arizonan upland Sonoran desert scrub	8,000	0	0	0	0	0
Intermontane deep or well-drained soil scrub	24,000	300	30	0	60	400
Intermontane seral shrubland	68,000	2,000	100	0	90	2,000
Inter-Mountain Dry Shrubland and Grassland	152,000	600	90	0	70	700
Intermountain Mountain Big Sagebrush Shrubland and steppe	48,000	10	0	0	0	10
Lower Bajada and Fan Mojavean - Sonoran desert scrub	2,254,000	27,000	3,000	600	6,000	36,000
Mojave and Great Basin upper bajada and toeslope	228,000	2,000	400	0	200	3,000
Shadscale - saltbush cool semi-desert scrub	157,000	2,000	50	200	400	2,000
Southern Great Basin semi-desert grassland	70	0	0	0	0	0
Dunes						
North American warm desert dunes and sand flats	34,000	0	0	0	0	0
Grassland						
California Annual and Perennial Grassland	196,000	5,000	300	0	400	6,000

Table IV.7-82
GCP Impact Analysis for Natural Communities – Preferred Alternative

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
California annual forb/grass vegetation	7,000	200	10	0	0	200
Riparian						
Madrean Warm Semi-Desert Wash Woodland/Scrub	96,000	0	0	0	0	0
Mojavean semi-desert wash scrub	17,000	0	0	0	0	0
Riparian	600	0	0	0	0	0
Sonoran-Coloradan semi-desert wash woodland/scrub	34,000	0	0	0	0	0
Southwestern North American riparian evergreen and deciduous woodland	6,000	0	0	0	0	0
Southwestern North American riparian/wash scrub	47,000	0	0	0	0	0
Wetland						
Arid West freshwater emergent marsh	4,000	0	0	0	0	0
Californian warm temperate marsh/seep	400	0	0	0	0	0
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	36,000	300	30	0	90	400
Open Water	114,000	2,000	10	600	700	3,000
Playa	52,000	0	0	0	0	0
Southwestern North American salt basin and high marsh	112,000	900	50	0	100	1,000
Wetland	8,000	70	0	0	40	100
Other Land Cover – Developed and Disturbed Areas						
Agriculture	693,000	35,000	800	8,000	8,000	52,000
Developed and Disturbed Areas	399,000	90	0	40	1,000	2,000

Table IV.7-82
GCP Impact Analysis for Natural Communities – Preferred Alternative

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Not Mapped	4,000	10	0	0	0	10
Rural	110,000	1,000	20	300	600	2,000
Total	**5,420,000**	**80,000**	**5,000**	**10,000**	**18,000**	**114,000**

1 Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
2 Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore, the subtotals may not sum to the total within the table.

Rare natural community alliances could be impacted under the Preferred Alternative on nonfederal lands, including impacts to Joshua tree woodland. CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection that would help avoid and minimize these effects on rare natural communities. Additionally, AM-DFA-ONC-1 and -2 would require inventorying and preserving or transplanting cactus, yuccas, and succulents. While the compensation CMAs would offset the lost habitat acreage of these impacts, the compensation CMAs do not specifically require the replacement of or mitigation for specific rare natural community alliances. After application of the CMAs, impacts to rare natural communities from the Preferred Alternative would be adverse and would require mitigation.

Impact BR-2: Siting, construction, decommissioning, and operational activities would result in adverse effects to jurisdictional waters and wetlands.

Siting, construction, decommissioning, and operations of Covered Activities have the potential to result in adverse effects to federal or state jurisdictional waters and wetlands. In the Plan Area, jurisdictional waters and wetlands would likely include the riparian and wetland communities analyzed under Impact BR-1 and may also include other features including playas, seeps/springs, major rivers, and ephemeral drainage networks.

All Covered Activities would be required to comply with existing, applicable federal and state laws and regulations related to jurisdictional waters and wetlands. Additionally, all impacts to riparian communities would be avoided under the Preferred Alternative through application of the riparian CMAs including riparian setbacks. All impacts to

Arid West freshwater emergent marsh and Californian warm temperate marsh/seep wetlands would be avoided under the Preferred Alternative through application of the wetland CMAs, including wetland setbacks (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). Approximately 5,000 acres of other wetland communities would be impacted under the Preferred Alternative. See the analysis for the loss of native vegetation provided under BR-1 for a discussion of these potential impacts. All or a portion of the estimated wetland impacts could result in adverse effects to jurisdictional waters and wetlands without compensation. Compensation CMAs would offset any impacts determined to be unavoidable.

Additionally, playas, seeps/springs, major rivers, and ephemeral drainages are waters and wetland features that provide hydrological functions and may be determined to be jurisdictional waters and wetlands. Adverse effects to these features would have the potential to impact jurisdictional waters and wetlands.

Playa

Less than 1% (approximately 300 acres) of playa would be impacted by Covered Activities under the Preferred Alternative within the GCP. About half of impacts would be associated with solar, with about 30 acres of wind impacts, and about 100 acres of transmission impacts. Ecoregion subareas of potential impacts to playas include the Cadiz Valley and Chocolate Mountains, Owens River Valley, Pinto Lucerne Valley and Eastern Slopes, Providence and Bullion Mountains, and West Mojave and Eastern Slopes subareas.

Avoidance of impacts to wetland communities including playas would benefit Covered Species that utilize these communities. In addition, application of species-specific CMAs would help avoid and minimize impacts to species associated with playas (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). CMAs would also require compliance with all applicable laws and regulations pertaining to wetlands and waters, including playas (AM-PW-9 and AM-LL-2). Compensation CMAs would offset impacts to these features (COMP-1 and COMP-2).

Seep/Spring

Seeps occur within DFAs and transmission corridors and impacts to seep/spring have the potential to occur under the Preferred Alternative within the GCP in each of the ten subareas. Impacts to seeps and springs would be adverse absent implementation of avoidance measures. Impacts to seep/spring locations and associated Covered Species and hydrological functions would be avoided through adherence to avoidance and minimization CMAs, including habitat assessments and avoidance of seeps with 0.25 mile setbacks (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). Compensation CMAs would offset any impacts determined to be unavoidable (COMP-1 and COMP-2).

Major Rivers

Under the Preferred Alternative within the GCP, there would no direct impacts to any of the four major rivers within the Plan Area – Amargosa, Colorado, Mojave, and Owens Rivers, but there could be indirect effects associated with modification of hydrology resulting from development. Riparian CMAs would require avoidance of these features with setbacks (AM-DFA-RIPWET-1).

Ephemeral Drainages

Ephemeral drainages occur throughout the Plan Area, and some of these features could be determined to state or federal jurisdictional waters. Impacts to ephemeral drainages would likely occur from Covered Activities. Application of riparian avoidance CMAs (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9) would avoid and minimize impacts to a portion of the ephemeral drainages within DFAs. Additionally, all Covered Activities would be required to comply with existing, applicable federal and state laws and regulations related to jurisdictional waters and wetlands.

Impact BR-3: Siting, construction, decommissioning, and operational activities would result in degradation of vegetation.

Siting, construction, and operational Covered Activities would result in the degradation of vegetation through the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants. The degree to which these factors contribute to the degradation of vegetation corresponds to the distribution of Covered Activities within the GCP that would result in dust, fire, and introduction of invasive plants or that would use dust suppressants and implement fire management. The propensity for vegetation to be at risk of degradation was determined by the overlap between natural community models and the likely distribution of Covered Activities across subareas in the GCP.

Based on the planned renewable energy capacity, the greatest amount of terrestrial operational impacts within the GCP would occur in the West Mojave and Eastern Slopes and the Imperial Borrego Valley subareas respectively, as shown in Table IV.7-83. As a result, these subareas would have the greatest potential to degrade vegetation as a result in the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants.

Table IV.7-83
GCP Terrestrial Operational Impacts – Preferred Alternative

Ecoregion Subarea	Solar Impact[1] (acres)	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Cadiz Valley and Chocolate Mountains	7,000	2,000	-	5,000	14,000
Imperial Borrego Valley	32,000	2,000	10,000	9,000	53,000
Kingston and Funeral Mountains	700	-	-	-	700
Mojave and Silurian Valley	2,000	-	-	500	2,500
Owens River Valley	-	-	-	200	200
Panamint Death Valley	-	-	-	-	0
Pinto Lucerne Valley and Eastern Slopes	6,000	7,000	-	2,000	15,000
Piute Valley and Sacramento Mountains	-	-	-	-	0
Providence and Bullion Mountains	500	-	-	200	700
West Mojave and Eastern Slopes	32,000	14,000	-	2,000	48,000
Total	**80,000**	**24,000**	**10,000**	**18,000**	**132,000**

[1] Solar impacts include ground-mounted distributed generation.

Notes: Terrestrial operational impacts collectively refers to vegetation degradation impacts (BR-3) from dust, dust suppressants, fire, fire management, and invasive plants and wildlife impacts (BR-4) from creation of noise, predator avoidance behavior, lighting and glare. For the purposes of analysis, terrestrial operational impacts were quantified using the project area extent for solar and geothermal, using 25% of the project area for wind, and the right-of-way area for transmission.

Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation, short-term and long-term wind (excluding project area impacts), geothermal project area, and transmission impacts. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore, the subtotals may not sum to the total within the table.

Dust and Dust Suppressants

Natural communities, and in particular natural communities containing Mojave desert shrubs, are susceptible to vegetation degradation from dust. Impacts to these natural communities would mostly occur in the West Mojave and Eastern Slope subarea, but would also occur from wind development and transmission and occur in the Pinto Lucerne Valley and Eastern Slopes subarea. Plant Covered Species, that could also experience vegetation degradation from dust, would mainly be impacted by Covered

Activities in the West Mojave and Eastern Slopes subarea and to a lesser extent in the Pinto Lucerne Valley and Eastern Slopes subarea. Considering the distribution of Covered Activities that would cause dust as well as the sensitive natural communities and plant Covered Species the West Mojave and Eastern Slopes subarea, and to a lesser extent the Pinto Lucerne Valley and Eastern Slopes subarea, would experience the greatest magnitude of vegetation degradation resulting from dust.

The application of dust suppressants is a common management practice, a Covered Activity under the Plan, and has been shown to effectively reduce dust. Dust-related degradation of vegetation would be further minimized within the GCP through the incorporation of avoidance and minimization CMAs. The Plan-wide avoidance and minimization CMAs would generally identify vegetation in the project area (AM-PW-1), utilize standard practices to minimize the amount of exposed soils (AM-PW-14) and reduce dust caused by soil erosion (AM-PW-10). Additionally, the Preferred Alternative would implement CMAs that would identify and protect or salvage specific plant species, reducing their exposure to dust. Setbacks and suitable habitat impact caps would also be implemented for plant Covered Species in DFAs and in the DRECP Plan-Wide Reserve Design Envelope for the Preferred Alternative (AM-DFA-PLANT-1 through AM-DFA-PLANT-3).

Riparian and wetland natural communities would be susceptible to the adverse effects of dust suppressants including chemical and physical changes, altered hydrological function, and increased pollutant loads in surface water. The Imperial Borrego Valley subarea would experience most of the impacts to riparian and wetland natural communities in the GCP, which corresponds to the potential greatest magnitude of vegetation degradation from adverse dust suppressant effects. Plant Covered Species, which would also be affected by the use of dust suppressants would mostly be impacted by Covered Activities in the West Mojave and Eastern Slopes subarea.

Avoidance and minimization CMAs implemented as part of the Preferred Alternative, including AM-PW-9 and AM-PW-10, would utilize standard practices to reduce erosion and runoff of dust suppressant into sensitive vegetation. Setbacks and avoidance requirements for all riparian natural communities and some wetland natural communities that would be implemented as part of the CMAs would minimize potential adverse effects of dust suppressants on these communities (AM-DFA-RIPWET-1).

Fire and Fire Management

Anthropogenic ignitions of fires that could result from operational and maintenance activities associated with renewable energy facilities could destroy the natural communities found in the Plan Area. Due to their slower speed of recovery, desert scrub natural communities are more susceptible to natural community conversion from fires. The impacts to desert scrub natural communities within the GCP would primarily occur

within the West Mojave and Eastern Slopes subarea and to a lesser extent in the Pinto Lucerne Valley and Eastern Slopes subarea.

Under the Preferred Alternative, construction and maintenance of fire breaks and other fire management techniques would impact California forest and woodlands, chaparral natural communities, and grassland natural communities within the GCP. The impacts to woodlands, chaparral, and grasslands, which correspond to the amount of potential vegetation degradation resulting from vegetation removal during fire management, would predominantly occur in the West Mojave and Eastern Slopes subarea and to a lesser extent in the Pinto Lucerne Valley and Eastern Slopes subarea.

Avoidance and minimization CMAs would be implemented to reduce the potential adverse effects of fire and fire management, including AM-PW-12 that would require projects to minimize the amount of vegetation clearing and fuel modification, under the Preferred Alternative.

Invasive Plants

Invasive plants can result in vegetation degradation by increasing the fuel load and the frequency of fires in plant communities as well hindering the growth or establishment of other plant species. Overall, the natural communities and plant Covered Species in the GCP are generally at of adverse effects from the introduction of invasive plants. The most vegetation degradation caused by the introduction of invasive plants would occur in the West Mojave and Eastern Slopes and Pinto Lucerne Valley and Eastern Slopes subareas. Plant Covered Species in the GCP would also experience potential vegetation degradation as a result of Covered Activities with most of the impacts occurring in the Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas.

Avoidance and minimization CMAs would be implemented to reduce vegetation degradation from invasive plants under the Preferred Alternative, including AM-PW-7 that would ensure the timely restoration of temporarily disturbed areas that could otherwise promote invasive plants. Additional CMAs would use standard practices to control weeds and invasive plants (AM-PW-11) and require the responsible use of herbicides to minimize potential vegetation degradation (AM-PW-15) for all Covered Activities.

Impact BR-4: Siting, construction, decommissioning, and operational activities would result in loss of listed and sensitive plants, disturbance, injury, and mortality of listed and sensitive wildlife, habitat for listed and sensitive plants and wildlife.

Impact BR-4 described at the Plan-wide level provides an impact analysis for Covered Species habitat by ecoregion subarea, specific Covered Species impact analyses, an indirect and terrestrial operational impact analysis for Covered Species, and a Non-Covered Species

impact analysis. The following provides an impact analysis for Covered Species on nonfederal GCP lands. Most of the impacts to plant and wildlife species and their habitat under the Preferred Alternative under the GCP would occur in the Imperial Borrego Valley and West Mojave and Eastern Slopes subareas.

Covered Species Habitat Impact Analysis by Ecoregion Subarea

West Mojave and Eastern Slopes Ecoregion Subarea

Renewable energy development in the West Mojave and Eastern Slopes subarea would mostly be from solar development, but would also include impacts from wind and transmission development. Typical impacts from these Covered Activities on plant and wildlife species and their habitat is described in Section IV.7.2. This subarea provides suitable habitat for Agassiz's desert tortoise that would be impacted. Compensation CMAs would offset habitat loss for this species.

There are impacts to suitable habitat for several bird Covered Species in the West Mojave and Eastern Slopes subarea, including Bendire's thrasher, burrowing owl, California condor, golden eagle, least Bell's vireo, mountain plover, southwestern willow flycatcher, Swainson's hawk, tricolored blackbird, and western yellow-billed cuckoo. CMAs require avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further avoid and minimize the impacts on southwestern willow flycatcher, tricolored blackbird, and western yellow-billed cuckoo to less than the acreage reported in Table IV.7-84. Additionally, the CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs (AM-DFA-AG-2). Compensation CMAs would offset habitat loss for these species.

Suitable habitat for bighorn sheep, desert kit fox, Mohave ground squirrel, pallid bat, and Townsend's big-eared bat would be impacted in this subarea. The siting of the DFAs under the GCP largely avoid habitat for bighorn sheep. The CMAs require avoidance of and setbacks from riparian and wetland habitat (AM-DFA-RIPWET-1) that would further reduce the impacts on these habitats used by Mohave ground squirrel, pallid bat, and Townsend's big-eared bat to less than the acreage reported in Table IV.7-84. Compensation CMAs would offset habitat loss for these species.

Suitable habitat for the following plant species would be impacted in the West Mojave and Eastern Slopes subarea: alkali mariposa-lily, Bakersfield cactus, Barstow woolly sunflower, desert cymopterus, Mojave monkeyflower, and Mojave tarplant. Although modeled suitable habitat for these species may be impacted by Covered Activities in this subarea, the CMAs require surveys for plant Covered Species for all Covered Activities, and the CMAs requiring avoidance of and setbacks from occupied habitat (AM-DFA-PLANT-1 through AM-DFA-

PLANT-3) would further reduce the impacts on these species to less than the acreage reported in Table IV.7-84. Compensation CMAs would offset habitat loss for these species.

Imperial Borrego Valley Ecoregion Subarea

Renewable energy development within the Imperial Borrego Valley subarea would be primarily from solar energy development, but would also include impacts from wind, geothermal, and transmission development. The Imperial Borrego Valley subarea provides suitable habitat for flat-tailed horned lizard that would be impacted. The siting of the DFAs under the GCP largely avoid habitat for flat-tailed horned lizard, and CMAs that require avoidance of and setbacks from dune habitat (AM-DFA-DUNE-1 through AM-DFA-DUNE-3) would further avoid and minimize the impacts on this species to less than the acreage reported in Table IV.7-84.

Impacts would occur to suitable habitat for the following covered bird species in this subarea: Bendire's thrasher, burrowing owl, California black rail, Gila woodpecker, golden eagle, greater sandhill crane, least Bell's vireo, mountain plover, southwestern willow flycatcher, Swainson's hawk, tricolored blackbird, and Yuma clapper rail. CMAs require avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further avoid and minimize the impacts on southwestern willow flycatcher, tricolored blackbird, least Bell's vireo, California black rail, and Yuma clapper rail to less than the acreage reported in Table IV.7-84. Additionally, the CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs (AM-DFA-AG-2).

Impacts to suitable habitat for desert pupfish, the only fish species with suitable habitat in this subarea, would be relatively minimal (approximately 200 acres). The avoidance and setback provisions for managed wetlands and agricultural drains (AM-DFA-RIPWET-1) would conserve wetland and riparian features within the agricultural matrix and provide conservation benefits to desert pupfish.

Only minimal impacts (approximately 20 acres) would occur to bighorn sheep mountain habitat in this subarea. Impacts to suitable habitat for other covered mammals species would occur for California leaf-nosed bat, desert kit fox, pallid bat, and Townsend's big-eared bat. The siting of the DFAs under the GCP largely avoid habitat for bighorn sheep. The CMAs require avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further reduce the impacts on these habitats used by California leaf-nosed bat, pallid bat, and Townsend's big-eared bat to less than the acreage reported in Table IV.7-84.

Table IV.7-84
GCP Impact Analysis for Covered Species Habitat – Preferred Alternative

Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Amphibian/Reptile						
Agassiz's desert tortoise	2,248,000	24,000	3,000	-	3,000	30,000
Flat-tailed horned lizard	310,000	4,000	40	1,000	2,000	7,000
Mojave fringe-toed lizard	168,000	2,000	60	-	2,000	4,000
Tehachapi slender salamander	41,000	90	10	-	-	100
Bird						
Bendire's thrasher	405,000	3,000	500	400	1,000	5,000
Burrowing owl	3,244,000	70,000	5,000	9,000	14,000	98,000
California black rail	127,000	2,000	20	500	700	3,000
California condor	997,000	15,000	1,000	-	800	17,000
Gila woodpecker	56,000	500	-	200	200	900
Golden eagle–foraging	1,498,000	8,000	1,000	20	2,000	10,000
Golden eagle–nesting	676,000	800	100	-	300	1,000
Greater sandhill crane	601,000	32,000	600	8,000	7,000	48,000
Least Bell's vireo	104,000	100	10	10	60	200
Mountain plover	811,000	39,000	1,000	8,000	8,000	56,000
Southwestern willow flycatcher	258,000	4,000	90	1,000	1,000	6,000
Swainson's hawk	1,339,000	32,000	1,000	5,000	4,000	42,000
Tricolored blackbird	257,000	7,000	300	20	300	8,000
Western yellow-billed cuckoo	111,000	200	10	-	40	200
Yuma clapper rail	31,000	30	-	10	10	40
Fish						
Desert pupfish	7,000	80	-	30	60	200
Mohave tui chub	100	-	-	-	-	-
Owens pupfish	13,000	-	-	-	-	-
Owens tui chub	13,000	-	-	-	-	-
Mammal						
Bighorn sheep – inter-mountain habitat	465,000	600	100	-	500	1,000

Table IV.7-84
GCP Impact Analysis for Covered Species Habitat – Preferred Alternative

Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Bighorn sheep – mountain habitat	807,000	2,000	500	-	1,000	3,000
California leaf-nosed bat	979,000	4,000	90	400	4,000	8,000
Mohave ground squirrel	1,319,000	16,000	2,000	-	2,000	20,000
Pallid bat	3,775,000	36,000	4,000	900	8,000	49,000
Townsend's big-eared bat	3,510,000	32,000	4,000	1,000	8,000	45,000
Plant						
Alkali mariposa-lily	117,000	2,000	100	-	100	2,000
Bakersfield cactus	200,000	3,000	500	-	50	4,000
Barstow woolly sunflower	82,000	500	60	-	30	600
Desert cymopterus	137,000	700	40	-	20	800
Little San Bernardino Mountains linanthus	130,000	300	80	-	100	500
Mojave monkeyflower	41,000	800	60	-	30	900
Mojave tarplant	129,000	500	30	-	40	600
Owens Valley checkerbloom	92,000	-	-	-	60	70
Parish's daisy	72,000	400	100	-	200	700
Triple-ribbed milk-vetch	3,000	-	-	-	-	-

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
[2] Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. Totals may not sum due to rounding. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore, the subtotals may not sum to the total within the table.

Specific Covered Species Impact Analyses

For Agassiz's desert tortoise, desert tortoise important areas were identified that include tortoise conservation areas (TCAs), desert tortoise linkages, and desert tortoise high priority habitat (see desert tortoise BGOs in Appendix C). Table IV.7-85 provides an impact analysis for these desert tortoise important areas in the GCP area, organized by desert tortoise Recovery Units: Colorado Desert, Eastern Mojave, and Western Mojave. Within the Colorado Desert Recovery Unit, approximately 1,000 acres of TCAs, linkage habitat, and high priority habitat would be impacted under the Preferred Alternative. Within the Eastern Mojave Recovery Unit, approximately 500 acres of habitat would be impacted under the Preferred Alternative all of which would be located in linkage habitat. Within the Western Mojave Recovery Unit, approximately 10,000 acres of TCAs and linkage habitat would be impacted under the Preferred Alternative. CMAs would require avoidance of TCAs, except for impacts associated with transmission or impacts in disturbed portions of TCAs (AM-DFA-ICS-5 and AM-DFA-ICS-7). Additionally, the CMAs would prohibit impacts that affect the viability of desert tortoise linkages (AM-DFA-ICS-8 and AM-DFA-ICS-9). Compensation CMAs would be required for impacts to desert tortoise, including desert tortoise important areas.

Table IV.7-85
GCP Impact Analysis for Desert Tortoise Important Areas – Preferred Alternative

Recovery Unit	Desert Tortoise Important Areas	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Colorado Desert	High Priority Habitat	31,000	-	-	-	10	10
	Linkage	63,000	-	-	-	10	20
	TCA	269,000	50	-	-	1,000	1,000
Colorado Desert Total		*363,000*	*60*	-	-	*1,000*	*1,000*
Eastern Mojave	Linkage	56,000	500	-	-	-	500
	TCA	66,000	-	-	-	-	-
Eastern Mojave Total		*122,000*	*500*	-	-	-	*500*
Western Mojave	Linkage	407,000	8,000	1,000	-	800	10,000
	TCA	392,000	200	30	-	300	600
Western Mojave Total		*798,000*	*8,000*	*1,000*	-	*1,000*	*10,000*
Total		**1,283,000**	**9,000**	**1,000**	-	**2,000**	**12,000**

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
[2] Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal

facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore, the subtotals may not sum to the total within the table.

For golden eagle, a territory-based analysis was conducted (see methods and results in the Chapter IV.7 portion of Appendix R2). Using the golden eagle nest database, golden eagle territories were identified and individually buffered by 1 mile (representing breeding areas around known nests) and 4 miles (representing use areas around known nests). A total of 156 territories occur wholly or partially within the GCP area. Under the Preferred Alternative, 31 territories have DFAs or transmission corridors within 1 mile of a nest. Implementation of the CMAs for golden eagles (AM-DFA-ICS-2) would prohibit siting or construction of Covered Activities within 1 mile of an active golden eagle nest; therefore, impacts within 1 mile of these golden eagle territories would be avoided. Under the Preferred Alternative, 60 territories have DFAs or transmission corridors within 4 miles of nest, and the use area of these territories could be impacted through harassment and reduced foraging opportunities by Covered Activities depending on the siting of specific projects. The CMAs for golden eagles (Section II.3.1.2.5) and the approach to golden eagles (see Appendix H) describes how the impact to golden eagles would be avoided, minimized, and compensated. Based on the 2013 analysis, no more than 15 golden eagles per year in 2014 would be allowed to be taken within the Plan Area, which would be reassessed annually.

For bighorn sheep, bighorn sheep mountain habitat and intermountain (linkage) habitat have been identified in the Plan Area. Under the Preferred Alternative on nonfederal land, approximately 3,000 acres of mountain habitat and 1,000 acres of intermountain habitat would be impacted. The Preferred Alternative identified DFAs that largely avoid impacts to bighorn sheep mountain and intermountain habitat, and avoidance, minimization, and compensation CMAs have been developed to offset the loss of habitat for bighorn sheep.

For Mohave ground squirrel, Mohave ground squirrel important areas were identified that include key population centers, linkages, expansion areas, and climate change extension areas (see Mohave ground squirrel BGOs in Appendix C). Table IV.7-86 provides an impact analysis for these Mohave ground squirrel important areas in the GCP area. Approximately 900 acres of impact would occur to key population centers in the Preferred Alternative and only approximately 100 acres of impact would occur in climate change extension areas. A total of 300 acres of impact to linkage and 3,000 acres of impact to expansion areas would occur under the Preferred Alternative. CMAs would require protocol surveys in population centers and linkages, as well as provide other measures to offset the loss of habitat for Mohave ground squirrel (AM-DFA-ICS-36 through AM-DFA-ICS-43). Additionally, the CMAs would prohibit impacts that affect the viability of linkages. Compensation CMAs would be

required for impacts to Mohave ground squirrel, including Mohave ground squirrel important areas.

Table IV.7-86
GCP Impact Analysis for Mohave Ground Squirrel Important Areas – Preferred Alternative

Mohave Ground Squirrel Important Area Type	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Key Population Center	193,000	700	100	-	100	900
Linkage	103,000	300	-	-	40	300
Expansion Area	258,000	2,000	200	-	100	3,000
Climate Change Extension	131,000	-	-	-	100	100
Total	**684,000**	**3,000**	**300**	**-**	**340**	**4,300**

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
[2] Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore, the subtotals may not sum to the total within the table.

Within the Plan Area, critical habitat has been designated by the USFWS for the following Covered Species: desert tortoise, southwestern willow flycatcher, desert pupfish, and Parish's daisy. For desert tortoise, approximately 1,000 acres of impact designated critical habitat would result from the development of Covered Activities on nonfederal lands under the Preferred Alternative located in the Chuckwalla, Fremont-Kramer, Ord-Rodman, and Superior-Cronese critical habitat units. Under the Preferred Alternative, no impacts to critical habitat designated for southwestern willow flycatcher, desert pupfish, or Parish's daisy would occur from the development of Covered Activities on nonfederal lands.

Indirect and Terrestrial Operational Impact Analysis

Siting, construction, and operational Covered Activities could result in the potential disturbance, injury, and mortality of listed and sensitive wildlife from noise, predator avoidance behavior, as well as light and glare. The degree to which these factors contribute to the disturbance of sensitive wildlife corresponds to the distribution of Covered Activities within the GCP that would result in noise, predator avoidance behavior, or light and glare.

Based on the planned renewable energy capacity in the GCP, most of terrestrial operational impacts would occur in the West Mojave and Eastern Slopes and the Imperial Borrego Valley subareas, as shown in Table IV.7-83. The Pinto Lucerne Valley and Eastern Slopes as well as the Cadiz Valley and Chocolate Mountains subareas would also experience larger amounts of terrestrial operational impacts within the GCP. As a result, these subareas would have the greatest potential to disturbance of sensitive wildlife from noise, predator avoidance behavior, as well as light and glare.

Noise

Noise can cause physical damage to wildlife as well as behavioral changes in habitat use, activity patterns, reproduction, and foraging. Nesting birds are expected to be particularly sensitive to noise effects. The largest amount of impacts to bird Covered Species modeled habitat in the GCP would be located in the West Mojave and Eastern Slopes and Imperial Borrego Valley subareas. Smaller mammals, such as the Mohave ground squirrel, and reptiles, such the Mojave fringe-toed lizard and flat-tailed horned lizard, could experience increased predation from noise hindering their ability to detect predators. The combined impacts in the GCP to the habitat for these noise sensitive Covered Species would mostly occur in the West Mojave and Eastern Slopes, Imperial Borrego Valley, as well as the Cadiz Valley and Chocolate Mountains subareas. As such, the disturbance of wildlife from noise would predominantly occur in the West Mojave and Eastern Slopes and Imperial Borrego Valley subareas.

Implementation of avoidance and minimization CMAs under the Preferred Alternative would reduce the disturbance and injury of wildlife from noise-related effects. The CMA AM-PW-13 would minimize noise generated from Covered Activities using standard practices while other CMAs that would avoid and setback Covered Activities from noise-sensitive wildlife including seasonal setbacks for nesting birds; setbacks from riparian and wetland habitat benefitting bids, amphibians, and small mammals; and avoidance of Mohave ground squirrel's during operations (AM-DFA-RIPWET-1, AM-DFA-RIPWET-5, and AM-DFA-ICS-36).

Predator Avoidance Behavior

The effects of predator avoidance behavior include wildlife experiencing behavioral changes due to human activities during siting, construction, and operations. Desert bighorn sheep use visual cues to assess and escape predators and may not utilize foraging habitat or water sources in proximity to renewable energy development. In addition, nesting bird species may experience behavioral changes that reduce foraging and breeding opportunities or lead to avoidance of suitable foraging habitat. However, Covered Activities are expected to generally result in predator avoidance and other behavioral changes in most wildlife species that are spread throughout the GCP.

Therefore, the most disturbance of wildlife from predator avoidance behavior would occur in the West Mojave and Eastern Slopes and Imperial Borrego Valley subareas, where most of the terrestrial operational impacts within the GCP would occur.

Avoidance and minimization CMAs for siting Covered Activities away from sensitive wildlife habitat would be implemented for riparian and wetland habitat, wildlife species that inhabit agricultural lands, and for particular species such as the Mohave ground squirrel (AM-DFA-RIPWET-1, AM-DFA-RIPWET-5, AM-DFA-AG-2, and AM-DFA-ICS-36). Under the Preferred Alternative, additional CMAs would inform workers of actions that could potentially affect wildlife behavior and restrict activities that could disturb wildlife and their access to water and foraging habitat (AM-PW-5, AM-PW-13, and AM-RES-RL-DUNE-2). Seasonal restrictions would also be implemented for recreational activities that might affect Bighorn sheep in the DRECP Plan-Wide Reserve Design Envelope for the Preferred Alternative (AM-RES-BLM-ICS-11). The potential disturbance of wildlife from predator avoidance behavior caused by siting, construction, and operational Covered Activities in the GCP would be minimized by these measures.

Light and Glare

Exposure of wildlife to light and glare can alter wildlife behavior including foraging, migration, and breeding. Solar projects are expected to have greater effects on wildlife compared to other renewable energy technologies because they would produce increased levels of glare due to the large amount of reflective panel or heliostat surfaces. Potential adverse effects associated with light and glare from solar projects, including solar flux and bird collisions from the lake effect are analyzed in BR-9.

Most of the terrestrial operational impacts in the GCP resulting from development of all technology types of renewable energy would occur in the West Mojave and Eastern Slopes and Imperial Borrego Valley subareas. Similarly, the Imperial Borrego Valley and West Mojave and Eastern Slopes subareas would experience most of terrestrial operational impacts from solar projects in the GCP. Therefore, these subareas would have the greatest potential to disturbance of sensitive wildlife from noise, predator avoidance behavior, as well as light and glare.

Bats and other diurnal predators may exploit night lighting that increases prey detectability, but would also be attracted to areas of greater development that increase potential hazards such as collision. Impacts to habitat for bats would as a result of Covered Activities in the GCP would mainly be located in the West Mojave and Eastern Slopes subarea and to a lesser extent in the Imperial Borrego Valley, Cadiz Valley and Chocolate Mountains, as well as the Pinto Lucerne Valley and Eastern Slopes subareas. Migratory birds that fly during the night may be attracted to aviation safety lighting. For bird Covered Species the West Mojave and Eastern Slopes and Imperial Borrego Valley are the subareas

primarily affected, containing most of the impacts to bird Covered Species habitat in the GCP. As such, wildlife disturbance is anticipated to occur primarily in the West Mojave and Eastern Slopes subarea and to a lesser extent in the Imperial Borrego Valley as well as Pinto Lucerne Valley and Eastern Slopes the subareas.

The Preferred Alternative would implement avoidance and minimization CMAs within the GCP specifically intended to reduce effects of lighting and glare including AM-PW-14, which would implement standard practices for shielding and reducing the use of lights, as well as AM-DFA-RIPWET-4, which specifically restricts lighting within one mile of riparian or wetland vegetation. Other CMAs applicable in the GCP would implement setbacks for riparian and wetland habitat, wildlife species that inhabit agricultural lands, and for smaller mammals, which would minimize their exposure to light and glare from Covered Activities (AM-DFA-RIPWET-1, AM-DFA-RIPWET-5, and AM-DFA-AG-2).

Non-Covered Species

Potential impacts to Non-Covered Species on GCP Land were analyzed as described in Section IV.7.3.2.1. Table IV.7-87 provides an estimation of the impacts to natural communities associated with Non-Covered Species. While estimation of impacts to natural communities likely overestimates the potential impacts to Non-Covered Species habitats, it provides a general range of level of impact.

Impacts to the dune community, riparian communities, arid west freshwater emergent marsh, and Californian warm temperate marsh/seep would be avoided through implementation of CMAs, so impacts to potential habitat for each of these species is likely greater than would actually occur. For some species, impacts would be minimized through avoidance of the specific natural communities required for those species, e.g., dune-, spring-, or cave-restricted invertebrates, or riparian-obligate bird or amphibian species. The total impact to potential habitat across all technology types is less than 1%, with the exception the desert scrub/chaparral communities at approximately 1.5%, grassland communities at approximately 3%, and within the agriculture/rural land cover areas at approximately 7%.

As additional analysis, Table IV.7-50 provides a cross-reference of natural communities shared between primary Covered and Non-Covered Species. There are a number of species-specific CMA's for Covered Species and natural communities that would be expected to also minimize and avoid impacts to the Non-Covered Species that may co-occur, e.g., the non-covered yellow-breasted chat often occurs within the same riparian habitat as the covered southwestern willow flycatcher, therefore, conservation measures implemented for southwestern willow flycatcher would often benefit the yellow-breasted chat. Although the modeled habitat for the Covered Species does not always directly overlap the range of Non-

Covered Species requiring similar habitat, this method provides a general additional guide for determining impacts and accounting for conservation measures.

Critical habitat for the federally-listed Non-Covered Species would essentially be avoided across all renewable energy types.

The results of impacts on Non-Covered Species from the creation of noise, predator avoidance behavior, and light and glare would be similar to those described for the Covered Species.

Table IV.7-87
GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – Preferred Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
California forest and woodland/ Desert conifer woodlands	Coast horned lizard, grey vireo, loggerhead shrike, yellow warbler, American badger, bighorn sheep, fringed myotis, hoary bat, long-eared myotis, pocketed free-tailed bat, spotted bat, Tehachapi pocket mouse, western mastiff bat, western small-footed myotis, Amargosa beardtongue, Charlotte's phacelia, creamy blazing star, Cushenbury buckwheat, Cushenbury milk-vetch, Cushenbury oxytheca, Kern buckwheat, Piute Mountains jewel-flower, purple-nerve cymopterus, San Bernardino Mountains dudleya, short-joint beavertail cactus, Spanish needle onion, Tracy's eriastrum, Cushenbury buckwheat	209,000	1,000	100	0	100	1,200	0.6%
Desert Scrub/ Chaparral Communities	Arroyo toad, banded gila monster, Coast horned lizard, Colorado Desert fringe-toed lizard, Couch's spadefoot, rosy boa, bald eagle, bank swallow, Crissal thrasher, Ferruginous hawk, gilded flicker, grey vireo, Le Conte's thrasher, loggerhead shrike, long-eared owl,	3,020,000	35,000	4,000	1,000	7,000	47,000	1.5%

Table IV.7-87
GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – Preferred Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	Lucy's warbler, northern harrier, yellow warbler, American badger, Arizona myotis, big free-tailed bat, bighorn sheep, cave myotis, fringed myotis, hoary bat, long-eared myotis, Palm Springs pocket mouse, pocketed free-tailed bat, spotted bat, Tehachapi pocket mouse, western mastiff bat, western small-footed myotis, western yellow bat, yellow-eared pocket mouse, Yuma myotis, Algodones Dunes sunflower, Ash Meadows gum plant, Amargosa beardtongue, bare- stem larkspur, Charlotte's phacelia, Cima milk-vetch, Coachella Valley milk-vetch, creamy blazing star, Cushenbury buckwheat, Cushenbury milk-vetch, Cushenbury oxytheca, desert pincushion, Emory's crucifixion-thorn, flat-seeded spurge, forked buckwheat, Harwood's eriastrum, Harwood's milkvetch, Inyo County star-tulip, Kelso Creek monkeyflower, Kern buckwheat, Las Animas colubrina, Lane Mountain Milk-Vetch,							

Table IV.7-87
GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – Preferred Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	Mojave Desert plum, Mojave milkweed, Munz's Cholla, nine-awned pappus grass, Orcutt's woody aster, Orocopia sage, Parish's club cholla, Pierson's milk-vetch, pink fairy-duster, Piute Mountains jewel-flower, purple-nerve cymopterus, Red Rock poppy, Red Rock tarplant, Robinson's monardella, Rusby's desert-mallow, sand food, Sodaville milk-vetch, short-joint beavertail cactus, Spanish needle onion, Thorne's buckwheat, Tracy's eriastrum, Utah beardtongue, white bear poppy, White-margined beardstongue, Wiggin's croton, Flat-seeded spurge, Parish's phacelia, Parish's alkali grass							
Dunes[3]/ Desert Outcrop and Badlands	Banded gila monster, barefoot gecko, Coast horned lizard, Colorado Desert fringe-toed lizard, Couch's spadefoot, rosy boa, bald eagle, bank swallow, Le Conte's thrasher, loggerhead shrike, long-eared owl, northern harrier, Amargosa vole, big free-tailed bat,	254,000	500	10	100	500	1,100	0.4%

Table IV.7-87
GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – Preferred Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	bighorn sheep, cave myotis, bat, spotted bat, western mastiff bat, Yuma myotis, Algodones Dunes sunflower, Ash Meadows gum plant, Amargosa beardtongue, Amargosa niterwort, Charlotte's phacelia, Cima milk-vetch, Coachella Valley milk-vetch, creamy blazing star, desert pincushion, Emory's crucifixion-thorn, flat-seeded spurge, forked buckwheat, Harwood's eriastrum, Harwood's milkvetch, Inyo County star-tulip, Las Animas colubrina, Mojave Desert plum, Mojave milkweed, nine-awned pappus grass, Orcutt's woody aster, Orocopia sage, Palmer's jackass clover, Parish's club cholla, Pierson's milk-vetch, pink fairy-duster, purple-nerve cymopterus, Red Rock poppy, Red Rock tarplant, Robinson's monardella, Rusby's desert-mallow, sand food, Spanish needle onion, Thorne's buckwheat, Utah beardtongue, white bear poppy, Wiggin's croton, Palmer's jackass clover, white-							

Table IV.7-87
GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – Preferred Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	margined beardtongue, flat-seeded spurge							
Grassland	Coast horned lizard, American peregrine falcon, bank swallow, Ferruginous hawk, long-eared owl, northern harrier, white-tailed kite, Amargosa vole, American badger, spotted bat, Cushenbury milk-vetch, Cushenbury oxytheca, short-joint beavertail cactus	203,000	5,000	300	0	400	5,700	2.8%
Riparian/ Wetlands	Arroyo toad, California red-legged frog, Coast horned lizard, Couch's spadefoot, Western pond turtle, American peregrine falcon, Arizona Bell's vireo, bald eagle, bank swallow, Crissal thrasher, gilded flicker, elf owl, Inyo California towhee, loggerhead shrike, long-eared owl, Lucy's warbler, northern harrier, redhead, vermillion flycatcher, white-tailed kite, yellow-breasted chat, yellow-headed blackbird, yellow warbler, Amargosa vole, Mojave River vole, Arizona myotis, cave myotis, fringed myotis, hoary bat, long-eared myotispocketed	413,000	1,300	100	0	200	1,600	0.4%

Table IV.7-87
GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – Preferred Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	free-tailed bat, spotted bat, western mastiff bat, western yellow bat, Yuma myotis, Ash Meadows gum plant, Inyo County star-tulip, Parish's alkali grass, Parish's phacelia, Amargosa pupfish, Amargosa speckled dace, Amargosa spring snails							
Agriculture/ Rural Land Cover	American peregrine falcon, Bank swallow, loggerhead shrike, long-eared owl, northern harrier, redhead, yellow-headed blackbird, yellow warbler, Arizona myotis, hoary bat, Tehachapi pocket mouse, western mastiff bat, western yellow bat	803,000	36,000	1,000	8,000	10,000	55,000	6.8%

1 Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

2 Solar impacts include ground-mounted distributed generation.

3 Impacts to the dune community, riparian communities, arid west freshwater emergent marsh, and Californian warm temperate marsh/seep would be avoided through implementation of CMAs. Only impacts determined to be unavoidable would occur in these natural communities.

4 This amount assumes the loss of conservation value for all land fragmented by the well fields.

Notes: The natural community classification system is described in Chapter III.7 and follows CDFG 2012. Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Impact BR-5: Siting, construction, decommissioning, and operational activities could result in loss of nesting birds (violation of the federal Migratory Bird Treaty Act and California Fish and Game Code Sections 3503, 3503.5, 3511, and 3513).

Siting, construction, decommissioning, and operations of renewable energy and transmission projects would result in the removal of vegetation and other nesting habitat and cause increased human presence and noise that has the potential to cause the loss of nesting birds, which would be a violation of the federal Migratory Bird Treaty Act. The potential loss of nesting birds resulting from these activities would be adverse without application of CMAs. Avoidance and minimization CMAs (AM-PW-4, 13, 14; AM-DFA-RIPWET-1, 3, 5; AM-DFA-AG-1 through 6; AM-DFA-ICS CMAs for bird species) include the season restrictions, survey requirements, and setbacks necessary to avoid and minimize the loss of nesting birds.

Impact BR-6: Siting, construction, decommissioning, and operational activities would adversely affect habitat linkages and wildlife movement corridors, the movement of fish, and native wildlife nursery sites.

Species-specific habitat linkages and wildlife movement areas are a component of analysis conducted under Impact BR-4 above. Suitable habitat for each species includes areas of habitat linkages and wildlife movement. Analysis under BR-4 specifically incorporates habitat linkage information for desert tortoise, Mohave ground squirrel, and desert bighorn sheep. In addition to the species-specific analysis of impacts to suitable habitat supporting habitat linkages and wildlife movement for species, landscape level information on habitat linkages (i.e., Desert Linkage Network) and migratory bird movement are analyzed below.

Desert Linkage Network

Table IV.7-88 shows the impact analysis for the desert linkage network for the Preferred Alternative. Overall, approximately 10,000 acres of desert linkage network could be adversely impacted in DFAs and transmission corridors in mainly four different subareas. In the Cadiz Valley and Chocolate Mountains subarea, DFAs are located in the portion of the desert linkage network that connects the Colorado River to the northern part of the McCoy Mountains. There are also DFAs in the linkage network that extends along the McCoy Mountains and connects south to the Palo Verde Mesa. There are also DFAs in the Palen Valley portion of a linkage network that extends south to the northern foothills of the Chocolate Mountains. In the Mojave and Silurian Valley, there are DFAs in the Mojave Valley in a linkage that connects the area east of Barstow north to the Superior Valley. In the Pinto Lucerne Valley and Eastern Slopes subarea, there are DFAs in the desert linkage network that connects the Grapevine Canyon Recreation Lands to the Granite Mountains and the Ord Mountains. There are also DFAs in the linkage that connects Black Mountain to the Mojave River. In the West Mojave and Eastern Slopes subarea, there are DFAs in the

linkage that connects the area around Baldy Mesa along the southern edge of the Plan Area to Helendale. DFAs also occur in the Brisbane Valley and in the linkages around Barstow. Farther west in the subarea, there are DFAs in the linkages that connect Fremont Valley and Soledad Mountain to the Tehachapi Mountains.

To avoid and minimize impacts to the desert linkage network beyond what is presented in Table IV.7-88, Covered Activities will be sited and designed to maintain the function of wildlife connectivity in the following linkage and connectivity areas: (1) across Interstate 10 centered on Wiley's Well Road to connect the Mule and McCoy mountains, (2) across Interstate 10 to connect the Chuckwalla and Palen mountains, (3) across Interstate 10 to connect the Chuckwalla Mountains to the Chuckwalla Valley east of Desert Center, and (4) the confluence of Milpitas Wash and Colorado River floodplain. In addition, the Riparian and Wetland Natural Communities and Covered Species CMAs will contribute to maintaining and promoting habitat connectivity and wildlife movement.

Table IV.7-88
GCP Impact Analysis for the Desert Linkage Network – Preferred Alternative

Desert Linkage Network by Ecoregion Subarea	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Cadiz Valley and Chocolate Mountains	148,000	700	40	-	2,000	3,000
Imperial Borrego Valley	10,000	70	-	20	10	100
Kingston and Funeral Mountains	12,000	-	-	-	-	-
Mojave and Silurian Valley	101,000	600	-	-	200	800
Owens River Valley	4,000	-	-	-	20	20
Panamint Death Valley	15,000	-	-	-	-	-
Pinto Lucerne Valley and Eastern Slopes	122,000	1,000	300	-	900	2,000
Piute Valley and Sacramento Mountains	24,000	-	-	-	-	-

Table IV.7-88
GCP Impact Analysis for the Desert Linkage Network – Preferred Alternative

Desert Linkage Network by Ecoregion Subarea	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Providence and Bullion Mountains	49,000	-	-	-	-	-
West Mojave and Eastern Slopes	468,000	4,000	500	-	200	4,000
Total	**952,000**	**6,000**	**800**	**20**	**3,000**	**10,000**

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
[2] Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II.
The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore, the subtotals may not sum to the total within the table.

Migratory Birds

Migration patterns and the potential impacts of different technologies are discussed, in the typical impacts section (Section IV.7.2.1.3), with direct habitat loss quantified in BR-4, and operational impacts quantified in BR-9. The following analysis focuses on the anticipated distribution of different technology types in relation to known migratory corridors, and migratory resources in each subarea.

In the Preferred Alternative wind generation is a small proportion of the overall generation mix, Private land DFAs are divide between the West Mojave and Eastern Slopes, Pinto Lucerne Valley and Cadiz and Chocolate Mountain Subareas. Wind development would mostly occur on the eastern slopes of the Tehachapi Mountains and in the mountainous areas around Lucerne Valley. Key bird migration areas affected would include routes between the Tehachapi and San Bernardino passes, and the temporary lakes and wetland refuges on and to the north of Edwards AFB. Wind development would also occur in the Cadiz and Chocolate Mountains subarea to the north west of Blythe in the McCoy wash area, and north of the I-10. These areas are near to the Colorado River migratory corridor, and may affect migratory bird movement to and from the Coachella Valley. No wind development in Imperial Borrego Valley is anticipated in the Preferred Alternative.

As with the plan-wide impacts, solar development would be constructed throughout the West Mojave and Eastern Slopes, Pinto Lucerne Valley, Cadiz and Chocolate Mountain and Imperial Borrego Valley subareas. . The Preferred Alternative would result in new PV and solar thermal generation facilities along the I-10 corridor, and to the west side of the Colorado River, in disturbed lands west of Blythe. This may give the appearance of a string of lakes on known migratory linkages for birds between the Colorado River corridor, and the Coachella Valley. Similarly, development in the West Mojave and Eastern slopes, and Pinto Lucerne Valley subareas would occur in DFAs between the passes of the Tehachapi Mountains, the passes of the San Bernardino Mountains, and dry lakes on Edwards AFB, and in the North Mojave. Private lands DFAs, in the Imperial Borrego Valley subarea would primarily be in agricultural lands to the south of the Salton

Application of CMAs would require projects to be sited and designed to avoid impacts to occupied habitat and suitable habitat for Covered Species to the maximum extent feasible. Further, siting and construction CMAs would minimize direct loss of riparian and wetland habitats. Compensation CMAs would offset habitat loss for Covered Species. A bird and bat use and mortality monitoring program would be implemented during operations. Further, proposed projects that are likely to impact bird and bat Covered Species during operation would develop and implement project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meet the approval of the appropriate DRECP Coordination Group. The goal of the project-specific Bird and Bat Covered Species Operational Actions would be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar and geothermal projects. Siting and construction CMAs would minimize direct loss of riparian and wetlands habitats. Compensation CMAs would offset habitat loss for Covered Species. The compensation requirements in AM-LL-4 would be based on ongoing/annual fees and the biological basis for the fee would be determined by the mortality effects as annually measured and monitored according to AM-LL-4. In combination, the application of siting, monitoring, operational and compensation CMAs would minimized impacts to migratory birds. Application of CMAs would reduce the overall impacts to migratory bird populations.

Impact BR-7: Siting, construction, decommissioning, and operational activities would result in habitat fragmentation and isolation of populations of listed and sensitive plants and wildlife.

As discussed in the Plan-wide analysis, the construction and operation of renewable energy and transmission projects can have the potential to fragment intact and interconnected landscapes resulting in isolated patches of habitat, isolated species populations, reduced gene flow, and remaining habitat that is more exposed to the edge effects of adjacent developments. The DRECP integrated planning process, as described in Volume II, avoids and minimizes this impact through the siting of DFAs and through the reserve design. In

order to minimize habitat fragmentation and population isolation, DFAs were sited in less intact and more degraded areas. Measures of fragmentation and population isolation effects include the amount of impacts on environmental gradients such as elevation, landforms, slope, and aspect. The impacts to these four environmental gradients under the Preferred Alternative within DFAs under the GCP would follow the same overall pattern as Plan-wide impacts (AM-LL-1 through AM-LL-4).

Impact BR-8: Construction of generation facilities or transmission lines would result in increased predation of listed and sensitive wildlife species.

As discussed in the Plan-wide analysis, Covered Activities in undisturbed desert habitat are likely to supplement predators, and increase predation rates on Covered Species. The GCP Preferred Alternative would result 60,000 acres of permanent conversion of natural desert communities and with 50,000 acres of impacts to already disturbed communities. 40% of the impacts would occur in Imperial Borrego Valley, 40% in West Mojave and Eastern Slopes, with 9 % of impacts would occur in the Cadiz and Chocolate Mountains, 8% at Pinto Lucerne Valley, and the remaining 10 % spread across the rest of the Plan Area.

Development in the West Mojave and Eastern Slopes subareas may supplement predators in undisturbed habitats including parts of the Tehachapi Mountains and DFAs to the north of Edwards AFB. However, much of the development would be expected in disturbed and agricultural land around Lancaster and in the Antelope Valley. In these areas, susceptible species would include nestlings and eggs of Covered Species like tricolored blackbird and golden eagle, mountain plover, Bendire's thrasher, Swainson's hawk, as well as small reptiles like the Tehachapi slender salamander, and mammals like the Mohave ground squirrel.

Covered Activities associated with solar and wind generation in the Pinto and Lucerne Valley subarea would affect areas in Lucerne Valley to the East of Victorville. Species impacted would include golden eagle, and other nesting birds as well as small mammals and reptiles like desert tortoise.

The development in the Cadiz and Chocolate Mountains subarea would be expected in the agricultural and disturbed lands around Blythe. Impacts are likely to increase predation on susceptible species including desert tortoise, Mojave fringe-toed lizard, and nesting bird species.

Impacts from solar and geothermal development area anticipated in Imperial Borrego Valley. Impacts would occur in agricultural and wetland habitats south of and west side of the Salton Sea. Increased predation may affect nesting birds; impacts may affect flat tailed horned lizard, desert tortoise, and nesting birds.

Application of a Common Raven management plan (AM-PW-6), approved by the appropriate DRECP Coordination Group would reduce project activities that increase predator subsidization. Activities include: removal of trash and organic waste; minimize introduction of new water sources including pooling of water from dust control; removal of carcasses from bird and bat collisions; and reduction in new nesting and perching sites where feasible.

The level of impact on Non-Covered Species would be similar to that discussed for the Covered Species.

Impact BR-9: Operational activities would result in avian and bat injury and mortality from collisions, thermal flux or electrocution at generation and transmission facilities.

The impacts of operation activities on avian and bat injury and mortality are analyzed below for wind turbines, solar, and transmission.

Wind Turbine

This section summarizes wind turbine operational impacts to bird and bat species within the private lands DFAs. The range of collision rates calculated in Table IV.7-89 is indicative of the overall annual collision rates for all bird and bat species, not just Covered Species. The range of collision rates is estimated for the final full build-out of wind over the life of the Plan, and is based on the range of collision rates in existing published and gray literature. While it is possible to provide a range of possible collision rates, it is not feasible to estimate the collision rate for each Covered Species, but only infer the propensity for a species to be at risk of collision from its expected distribution and life history of the birds in the Plan Area.

Overall, the Preferred Alternative would result in a median of 6,000 collisions per year for birds and 28,000 collisions for bats in DFAs on nonfederal lands. The expected distribution of wind generation indicates that 57% of all collisions would occur in the West Mojave and Eastern Slopes subarea, 29% in the Pinto Lucerne Valley and Eastern Slopes subarea, 7% in the Cadiz Valley and Chocolate Mountains subarea, and 7% in the Imperial Borrego Valley subarea.

Wind operations in the Cadiz Valley and Chocolate Mountains region would result in a higher risk of collisions for Bendire's thrasher, burrowing owl, California black rail, Gila woodpecker, golden eagle, greater sandhill crane, mountain plover, western yellow-billed cuckoo, and Yuma clapper rail. Whereas, development in the Pinto and Lucerne Valley subarea would affect golden eagle territories and important Bendire's thrasher habitat. The primary area for wind development, would be the west Mojave, in which Bendire's thrasher, burrowing owl, golden eagle, mountain plover, southwestern willow flycatcher, Swainson's hawk, and tricolored blackbird would be at risk.

Pre-construction CMAs require habitat assessments and pre-construction surveys for covered riparian and wetland bird, burrowing owl, greater sandhill crane, Swainson's hawk, Bendire's thrasher, golden eagle, and covered plant species.

Application of siting CMAs would avoid or minimize the risk to species localities. Setbacks from active nests would be required for Bendire's thrasher, California condor, Gila woodpecker, and golden eagle. In addition, projects would be sited and designed to avoid impacts to occupied habitat, and suitable habitat for Covered Species to the maximum extent feasible. Implementation of bat specific CMAs include 0.5 mile setbacks from all bat maternity roosts and 5% disturbance caps on desert scrub and woodland habitats in the vicinity of occupied Pallid bat and Townsend's Big eared Bats roosts would reduce impacts to covered bat species.

Applicants would develop and implement a project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meets the approval of the appropriate DRECP Coordination Group. The goal of the project-specific Bird and Bat Covered Species Operational Actions will be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar, geothermal, or transmission project. A bird and bat use and mortality monitoring program will be implemented during operations using current protocols and best procedures available at time of monitoring. Further, the compensation requirements in AM-LL-4 would be based on ongoing/annual fees and the biological basis for the fee will be determined by the mortality effects as annually measured and monitored according to AM-LL-4.

Similarly, a Condor Operations Strategy (COS) would be developed on a project-specific basis with the goal of avoiding mortality from operations of wind, solar and geothermal projects. No take for condors will be will be permitted in the form of kill from project operations. Any actions taken to encourage condors to leave an area that might result in harassment, injury, or mortality to the bird will be conducted by a Designated Biologist.

Table IV.7-89
GCP Impact Analysis – Estimated Range of Bird and Bat Collisions per Year by Subarea – Preferred Alternative[1]

Ecoregion Subarea	# Turbines	Birds (Collisions/Yr)[1]			Bats (Collisions/Yr)[1]		
		Low	*Median*	*High*	*Low*	*Median*	*High*
Cadiz Valley and Chocolate Mountains	85	100	400	2,000	200	2,000	12,000
Imperial Borrego Valley	80	100	400	2,000	200	2,000	11,000
Kingston and Funeral Mountains	0	-	-	-	-	-	-

Table IV.7-89
GCP Impact Analysis – Estimated Range of Bird and Bat Collisions per Year by Subarea – Preferred Alternative[1]

Ecoregion Subarea	# Turbines	Birds (Collisions/Yr)[1]			Bats (Collisions/Yr)[1]		
		Low	*Median*	*High*	*Low*	*Median*	*High*
Mojave and Silurian Valley	0	-	-	-	-	-	-
Owens River Valley	0	-	-	-	-	-	-
Panamint Death Valley	0	-	-	-	-	-	-
Pinto Lucerne Valley and Eastern Slopes	356	500	2,000	7,000	700	8,000	50,000
Piute Valley and Sacramento Mountains	0	-	-	-	-	-	-
Providence and Bullion Mountains	0	-	-	-	-	-	-
West Mojave and Eastern Slopes	700	1,000	3,000	13,000	1,000	16,000	98,000
Grand Total	**1,220**	**2,000**	**6,000**	**23,000**	**2,000**	**28,000**	**171,000**

[1] Method for estimation of annual bird and bat collision rates described in Section IV.7.1.1.2 and discussed in more detail in Section IV.7.2.1.3

Note: The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore, the subtotals may not sum to the total within the table.

Solar

Under the Preferred Alternative, impacts to avian and bat species from solar development based on the planned solar capacity. The distribution of impacts under the GCP would be similar to that found in the Plan-wide analysis. Nonfederal DFAs would see a 4.2-fold increase in collision risks relative to baseline. 8% of the collision risks would occur in the Cadiz and Chocolate Mountains, with, 37% in Imperial Borrego Valley, 40% in West Mojave and Eastern Slopes, 6% in the Kingston and Funeral Mountains, 7% at Pinto Lucerne Valley and Eastern Slopes, and the remaining 4% spread across the rest of the plan area.

Development in the West Mojave and Eastern Slopes subareas would occur in the Tehachapi Mountains, areas to the north of Edwards AFB, and agricultural land around Lancaster and in the Antelope Valley. In these areas, susceptible species would include pallid bat, California leaf-nosed bat, Townsend's big-eared bat, tricolored blackbird, golden eagle, mountain plover, Bendire's thrasher, burrowing owls and to a lesser extent Swainson's hawk.

Covered Activities associated with solar generation in the Pinto and Lucerne Valley subarea would affect nonfederal lands in the western part of Lucerne Valley under the GCP. Species impacted would include the same species as the West Mojave and Eastern Slopes subarea.

Development in the Cadiz and Chocolate Mountains subarea under the GCP would occur in the agricultural lands around Blythe. Species habitat impacted by Covered Activities include Bendire's thrasher, burrowing owl, Gila woodpecker, golden eagle, greater sandhill crane, mountain plover, pallid bat, California leaf-nosed bat, and Townsend's big-eared bat.

Anticipated impacts in the Imperial Borrego Valley subarea under the GCP would occur in agricultural and wetland habitats south and west side of the Salton Sea. Birds at risk from solar impacts include Bendire's thrasher, burrowing owl, California black rail, Gila woodpecker, golden eagle, greater sandhill crane, mountain plover, southwestern willow flycatcher, Swainson's hawk, Yuma clapper rail, pallid bat, California leaf-nosed bat, and Townsend's big-eared bat.

To offset potential impacts, the application of CMAs would require projects to be sited and designed to avoid impacts to occupied and suitable habitat for Covered Species, to the maximum extent feasible. Further, siting and construction CMAs require setbacks from riparian and wetland habitats which would minimize direct loss. Compensation CMAs would offset habitat loss for Covered Species. A bird and bat use and mortality monitoring program would be implemented during operations. Any proposed projects that are likely to impact bird and bat Covered Species during operation would develop and implement project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meet the approval of the appropriate DRECP Coordination Group. The goal of the project-specific Bird and Bat Covered Species Operational Actions would be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar and geothermal projects. The compensation requirements of AM-LL-4 would be based on ongoing/annual fees and the biological basis for the fee would be determined by the mortality effects as annually measured and monitored according to AM-LL-4. In combination, the application of siting, monitoring, operational and compensation CMAs would minimize impacts to resident and migratory birds. Bat mortality from solar facilities may occur because of collision or solar flux injury. No DFAs are known to be specifically sensitive areas for bat foraging, and implementation of bat specific CMAs include 500 feet setbacks from all bat maternity roosts and 5% disturbance caps on desert scrub and woodland habitats in the vicinity of occupied pallid bat and Townsend's big-eared bat roosts would reduce impacts to bat Covered Species. Further, the development of Bird and Bat Covered Species Operational Actions (AM-LL-4) as discussed above would greatly reduce the risk to bat populations. Consequently, application of CMAs would reduce the overall impacts to bat populations.

Transmission

The transmission collision and electrocution impacts would occur from generation tie lines (collector lines), new substations, and major transmission lines (delivery lines) that deliver power to major load centers. The distribution of impacts from collector lines would mostly occur within DFAs and be similar in distribution to the generation facilities. Most of the affected areas on nonfederal lands would be in West Mojave and Eastern Slopes, Pinto Lucerne Valley, Mojave and Silurian Valley, Cadiz Valley and Chocolate Mountains, and the Imperial Borrego Valley subareas, with 2,000 acres, 2,000 acres, 1,000 acres,5,000 acres and 9,000 acres of terrestrial impacts anticipated respectively. The remaining terrestrial impacts would be spread throughout the remaining subareas.

Both large transmission lines and the network of smaller gen-tie lines would present collision and electrocution hazard to covered bird species. In particular, lines running perpendicular to migratory corridors, and/or close to bird refuges would represent a greater hazard. Such lines would include those anticipated to run parallel to the eastern foothills of the Tehachapi mountains and those that would cross the Tehachapi mountain passes. In addition, anticipated delivery lines in Chuckwalla Valley would run parallel to I-10 corridor in the existing transmission corridors. In the Imperial Borrego Valley subarea, lines would run along the along the eastern side of Salton Sea in existing transmission corridors that run parallel to the foothills of the Chocolate Mountains; and would also run from east to west between the Imperial Valley and the San Diego area. All these lines would represent additional risk to migrating and overwintering covered avian species, due to their location. Collision risks in these areas increase during storm events when flocks of migrating birds come down to wait out the storms before continuing their migration.

All bird Covered Species may be impacted by additional transmission infrastructure. To ameliorate potential hazards, transmission projects would reduce impacts to Covered Species by implementing Plan-wide, landscape-level, natural community, and Covered Species CMAs where feasible, as discussed under the wind impacts section.

Applicants would develop and implement a project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meets the approval of the appropriate DRECP Coordination Group. The goal of the project-specific Bird and Bat Covered Species Operational Actions will be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar, geothermal, or transmission project. A bird and bat use and mortality monitoring program will be implemented during operations using current protocols and best procedures available at time of monitoring. Further, the compensation requirements in AM-LL-4 would be based on ongoing/annual fees and the mortality effects as annually measured and monitored according to AM-LL-4 will determine the biological basis for the fee.

In addition, transmission projects would implement transmission specific CMAs that would, where feasible, bury electrical collector lines along roads (AM-TRANS-1); fit flight diverters on all transmission projects spanning or within 1,000 feet of water bodies and watercourses (AM-TRANS-2); avoid siting transmission projects that span canyons or are located on ridgelines (AM-TRANS-3); restrict transmission projects to within designated utility corridors (AM-TRANS-4). With the implementation of CMAs impacts to Covered Species would minimized.

Operational Impacts Take Estimates for Covered Avian and Bat Species

The following section summaries the initial estimates for take of Covered Species by operational activities that would require compensatory mitigation. Take estimates integrate all sources of mortality for each technology discussed above.

Table IV.7-90
GCP Estimated Total Take for Covered Avian and Bat Species – Preferred Alternative

Covered Bird and Bat Species	Solar Impact	Wind Impact	Geothermal Impact	Total Impact
Bendire's thrasher	30	20	0	50
Burrowing owl	130	20	10	150
California condor[1]	0	0	0	0
California black rail	30	0	0	30
Gila woodpecker	30	0	0	30
Golden eagle[2]	n/a	n/a	n/a	n/a
Least Bell's vireo	30	0	0	30
Mountain plover	60	20	10	90
Greater sandhill crane	10	0	10	20
Southwestern willow flycatcher	50	0	0	50
Swainson's hawk	40	10	0	50
Tricolored blackbird	60	20	0	70
Western yellow billed cuckoo	30	0	0	30
Yuma clapper rail	30	0	0	30
Grand Total Avian Species	**530**	**90**	**30**	**650**
California leaf-nosed bat	10	10	0	20
Pallid bat	10	50	0	60
Townsend's big-eared bat	30	10	10	50
Grand Total Bat Species	**50**	**70**	**10**	**130**

1 Take for California condor would not be permitted under the DRECP.

2 Take of golden eagle would be permitted on a project by project basis. Based on the 2013 analysis, no more than 15 golden eagles per year would be authorized for 2014 for any new activity within the Plan Area. Take limits for the DRECP area will be re-evaluated annually based on the amount of ongoing take and population estimates of eagles within the local-area population of eagles.

IV.7.3.2.4.2 Impacts of the Reserve Design under the General Conservation Plan

In the nonfederal GCP portion of the Plan Area for the Preferred Alternative, the Reserve Design Lands include existing conservation areas on nonfederal lands (434,000 acres), nonfederal lands within BLM LUPA conservation designations (1,200,000 acres), and Conservation Planning Areas on nonfederal lands (1,080,000 acres). The following provides an analysis of the conservation that would be provided by these areas, organized by landscape, natural communities, and species.

Landscape

Habitat Linkages

Table IV.7-91 shows the conservation of the desert linkage network under the Preferred Alternative for the GCP. Conservation of the desert linkage network totals approximately 302,000 acres (32%). None of the linkages are entirely conserved under the GCP. However, the majority of the linkage from the southern end of the Plan Area directly north to the Los Angeles/Kern County line in the West Mojave and Eastern Slopes subarea is conserved, as well as the part of the linkage across the Mojave Desert farther north. In addition to conservation of the desert linkage network, CMAs provide for the avoidance and minimization of certain linkages in the DFAs (see Section IV.7.3.2.4.1).

Table IV.7-91
GCP Conservation Analysis for the Desert Linkage Network – Preferred Alternative

Desert Linkage Network by Ecoregion Subarea	Available Lands (acres)	Existing Conservation[1] (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Cadiz Valley and Chocolate Mountains	148,000	2,000	46,000	10,000	57,000	38%
Imperial Borrego Valley	10,000	-	2,000	100	2,000	16%
Kingston and Funeral Mountains	12,000	30	2,000	400	2,000	17%
Mojave and Silurian Valley	101,000	5,000	17,000	6,000	28,000	28%
Owens River Valley	4,000	-	2,000	200	3,000	60%

Table IV.7-91
GCP Conservation Analysis for the Desert Linkage Network – Preferred Alternative

Desert Linkage Network by Ecoregion Subarea	Available Lands (acres)	Existing Conservation[1] (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Panamint Death Valley	15,000	6,000	2,000	500	8,000	58%
Pinto Lucerne Valley and Eastern Slopes	122,000	12,000	23,000	3,000	38,000	31%
Piute Valley and Sacramento Mountains	24,000	-	2,000	2,000	4,000	17%
Providence and Bullion Mountains	49,000	4,000	6,000	3,000	13,000	27%
West Mojave and Eastern Slopes	468,000	26,000	75,000	47,000	147,000	31%
Grand Total	**952,000**	**56,000**	**176,000**	**71,000**	**302,000**	**32%**

1 Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on nonfederal land.

2 Includes nonfederal inholdings within existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations).

Notes: Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore, the subtotals may not sum to the total within the table.

Hydrological Resources

A conservation analysis for hydrological resources is provided below, including playa, seep/spring, and the four major rivers in the Plan Area (i.e., Amargosa, Colorado, Mojave and Owens) under the Preferred Alternative within the GCP. Conservation of riparian areas and wetlands, which co-occur with many of these hydrological resources is provided below under Natural Communities.

Playa

Playa totals 74,000 acres in the Plan Area under the Preferred Alternative within the GCP. Overall, 20% (15,000 acres) would be conserved under the Preferred Alternative within the GCP. Existing Conservation would account for 15% of the conservation, BLM LUPA would account for 71%, and Conservation Planning Areas would account for 14%. Additionally, playas and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks. CMAs for playas would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided riparian or wetland natural communities.

Seep/Spring

There are approximately 200 seep/spring locations in the Plan Area under the Preferred Alternative within the GCP. Overall, 30% of the seep/spring locations would be conserved under the Preferred Alternative within the GCP. The conservation of seep/spring under the Preferred Alternative would be less than half in all subareas. These include Imperial Borrego Valley (46%, 9 locations), Kingston and Funeral Mountains (17%, 3 locations), Mojave and Silurian Valley (35%, 3 locations), Owens River Valley (23%, 6 locations), Pinto Lucerne Valley and Eastern Slopes (38%, 13 locations), Providence and Bullion Mountains (28%, 3 locations), and West Mojave and Eastern Slopes (27%, 17 locations).

Overall, Existing Conservation would account for 39% of the conservation of seep/spring, BLM LUPA conservation designations would account for 43%, and Conservation Planning Areas would account for 18%. Additionally, seeps and springs and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks. CMAs for seep/spring locations would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided wetland natural communities.

Major Rivers

Overall, 61% of the major rivers would be conserved under the Preferred Alternative within the GCP, including 25% of the Amargosa River, 33% of the Colorado River, 67% of the Mojave River, and 70% of the Owens River. Conservation Planning Areas would account for 79% of the conservation of the major rivers, Existing Conservation would account for 8%, and BLM LUPA conservation designations would account for 12%. Additionally, major rivers and associated Covered Species, natural communities, and hydrological functions

would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks.

Dune and Sand Resources

Overall, 20% (42,000 acres) of dunes and sand resources would be conserved under the Preferred Alternative within the GCP. At least 25% of dunes and sand resources would be conserved in 3 subareas in the Plan Area that contain substantial acreage of dunes and sand resources, including Imperial Borrego Valley at 26% (3,000 acres), Owens River Valley at 25% (approximately 900 acres), and Panamint and Death Valley at 33% (approximately 1,000 acres). Additionally, dunes and sand resources and associated Covered Species, natural communities and ecological functions would be avoided through application of the dune avoidance and minimization CMAs.

Environmental Gradients

The conservation analysis addresses four types of environmental gradients in the Plan Area: elevation, landforms, slope, and aspect. The conservation of these four environmental gradients under the Preferred Alternative within the GCP would follow the same overall pattern as Plan-wide conservation.

Natural Communities

Table IV.7-92 shows the conservation to natural communities under the GCP. A conservation summary by general community is provided below in comparison to Plan-wide conservation discussed in Section IV.7.3.2.1.2. Appendix R2 provides a detailed analysis of natural community conservation by ecoregion subarea.

California forest and woodlands

Overall, approximately 1,198,000 acres (22%) of California forest and woodlands would be conserved under the Preferred Alternative under the GCP. The majority of the conserved acreage would occur in the West Mojave and Eastern Slopes subarea. Conservation would primarily come from BLM LUPA conservation designations and existing conservation areas. In addition to conservation of California forest and woodlands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 11,000 acres (13%) of chaparral and coastal scrubs would be conserved under the Preferred Alternative under the GCP. The majority of conservation

would occur in Conservation Planning Areas. In addition to conservation of chaparral and coastal scrubs, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert conifer woodlands

Overall, approximately 19,000 acres (18%) of desert conifer woodlands would be conserved under the Preferred Alternative under the GCP. Almost half of the conserved acreage would occur in the West Mojave and Eastern Slopes subarea. Conservation would primarily come from Conservation Planning Areas. In addition to conservation of desert conifer woodlands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert outcrop and badlands

Overall, approximately 110,000 acres (50%) of desert outcrop and badlands would be conserved under the Preferred Alternative in the GCP. The majority of conservation would occur in the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas. Conservation would primarily come from existing conservation. In addition to conservation of desert outcrop and badlands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert scrubs

Overall, approximately 833,000 acres (28%) of desert scrubs would be conserved under the Preferred Alternative under the GCP. The majority of conservation would occur in the Imperial Borrego Valley and West Mojave and Eastern Slopes subareas. Conservation would be relatively well distributed among existing conservation, BLM LUPA conservation designations, and Conservation Planning Areas. In addition to conservation of desert scrubs, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Dunes

Overall, approximately 7,000 acres (21%) of dunes would be conserved under the Preferred Alternative under the GCP. Most of the conserved dunes acreage would be in the Mojave and Silurian Valley, Imperial Borrego Valley, Cadiz Valley and Chocolate Mountains, and Kingston and Funeral Mountains subareas. Conservation would primarily come from Conservation Planning Areas. In addition, CMA application would require avoidance of all dunes and prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

Grasslands

Overall, approximately 24,000 acres (12%) of grasslands would be conserved under the Preferred Alternative under the GCP. The majority of conserved acreage would occur in the West Mojave and Eastern Slopes subarea, but only 9% of the grasslands are conserved in this subarea. Almost half of the conservation would be in Conservation Planning Areas. In addition to conservation of grasslands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Riparian

Overall, approximately 74,000 acres (37%) of riparian communities would be conserved under the Preferred Alternative under the GCP. Most of the conserved acreage would occur in the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas. Conservation would primarily come from BLM LUPA conservation designations. In addition, CMA application would require avoidance of and setbacks from all riparian communities as well as to other CMAs that would benefit riparian communities beyond simply conservation.

Wetlands

Overall, approximately 72,000 acres (22%) of riparian communities would be conserved under the Preferred Alternative under the GCP. Most of the conserved wetland acreage would occur in the Owens River Valley, Imperial Borrego Valley, and West Mojave and Eastern Slopes subareas. Conservation would primarily come from BLM LUPA conservation designations. In addition, CMA application would require avoidance of and setbacks from Arid West freshwater emergent marsh and Californian warm temperate marsh/seep as well as other CMAs that would benefit riparian communities beyond simply conservation.

Table IV.7-92
GCP Conservation Analysis for Natural Communities – Preferred Alternative

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
California forest and woodland						
Californian broadleaf forest and woodland	61,000	800	10,000	600	11,000	18%
Californian montane conifer forest	44,000	7,000	4,000	1,000	13,000	29%
Chaparral and coastal scrub community (Cismontane scrub)						
Californian mesic chaparral	3,000	20	400	200	600	17%
Californian pre-montane chaparral	1,000	0	200	10	200	19%
Californian xeric chaparral	19,000	600	600	3,000	4,000	20%
Central and south coastal California seral scrub	1,000	0	0	30	30	2%
Central and South Coastal Californian coastal sage scrub	42,000	300	2,000	2,000	5,000	11%
Western Mojave and Western Sonoran Desert borderland chaparral	15,000	600	100	800	2,000	10%

Table IV.7-92
GCP Conservation Analysis for Natural Communities – Preferred Alternative

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Desert conifer woodlands						
Great Basin Pinyon - Juniper Woodland	104,000	7,000	2,000	10,000	19,000	18%
Desert outcrop and badlands						
North American warm desert bedrock cliff and outcrop	220,000	68,000	29,000	12,000	110,000	50%
Desert Scrub						
Arizonan upland Sonoran desert scrub	8,000	3,000	0	800	4,000	49%
Intermontane deep or well-drained soil scrub	24,000	2,000	3,000	2,000	7,000	29%
Intermontane seral shrubland	68,000	500	1,000	2,000	3,000	5%
Inter-Mountain Dry Shrubland and Grassland	152,000	21,000	15,000	5,000	41,000	27%
Intermountain Mountain Big Sagebrush Shrubland and steppe	48,000	1,000	6,000	900	9,000	18%
Lower Bajada and Fan Mojavean - Sonoran desert scrub	2,254,000	246,000	292,000	157,000	694,000	31%

Table IV.7-92
GCP Conservation Analysis for Natural Communities – Preferred Alternative

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Mojave and Great Basin upper bajada and toeslope	228,000	13,000	13,000	22,000	48,000	21%
Shadscale - saltbush cool semi-desert scrub	157,000	1,000	7,000	18,000	27,000	17%
Southern Great Basin semi-desert grassland	70	0	0	0	0	5%
Dunes						
North American warm desert dunes and sand flats	34,000	800	2,000	4,000	7,000	21%
Grassland						
California Annual and Perennial Grassland	196,000	8,000	5,000	11,000	23,000	12%
California annual forb/grass vegetation	7,000	400	200	300	900	13%
Riparian						
Madrean Warm Semi-Desert Wash Woodland/Scrub	96,000	3,000	25,000	6,000	33,000	35%
Mojavean semi-desert wash scrub	17,000	3,000	900	2,000	6,000	35%
Riparian	600	20	0	300	300	57%
Sonoran-Coloradan semi-desert wash woodland/scrub	34,000	11,000	5,000	3,000	19,000	55%

Table IV.7-92
GCP Conservation Analysis for Natural Communities – Preferred Alternative

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Southwestern North American riparian evergreen and deciduous woodland	6,000	400	300	2,000	2,000	42%
Southwestern North American riparian/wash scrub	47,000	3,000	3,000	6,000	13,000	27%
Wetland						
Arid West freshwater emergent marsh	4,000	40	200	1,000	1,000	33%
Californian warm temperate marsh/seep	400	0	0	80	80	20%
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	36,000	2,000	4,000	2,000	8,000	21%
Open Water	114,000	800	1,000	14,000	16,000	14%
Playa	52,000	20	11,000	300	11,000	22%
Southwestern North American salt basin and high marsh	112,000	3,000	23,000	9,000	35,000	31%
Wetland	8,000	30	200	500	700	9%
Other Land Cover						
Agriculture	693,000	5,000	2,000	3,000	10,000	1%

Table IV.7-92
GCP Conservation Analysis for Natural Communities – Preferred Alternative

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Developed and Disturbed Areas	399,000	500	2,000	300	2,000	1%
Not Mapped	4,000	50	200	300	600	14%
Rural	110,000	400	4,000	8,000	12,000	11%
Total	**5,420,000**	**412,000**	**474,000**	**311,000**	**1,198,000**	**22%**

1 Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on nonfederal land

2 Includes nonfederal inholdings within existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations)

3 Conservation Planning Areas include areas of the reserve design from which reserve areas would be assembled on private and other public land.

Notes: Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore, the subtotals may not sum to the total within the table.

Covered Species Habitat

Table IV.7-93 shows the conservation of Covered Species modeled habitat under the Preferred Alternative (before the application of CMAs) GCP. Generally, the percent conservation of Covered Species modeled habitat in available lands is highly variable, ranging from 1% for greater sandhill crane (primarily found in agricultural areas) to 63% for Mohave tui chub.

Conservation percentages are in large part related to the location and types of habitat modeled for the Covered Species. For example, modeled habitat for greater sandhill crane, which is primarily freshwater wetland and agriculture, is limited to the Palo Verde and Imperial valleys and is mostly within DFAs.

Much of the modeled habitats for desert tortoise and Mojave fringe-toed lizard are in the Mojave Desert in areas that occur in the BLM LUPA conservation designations. Flat-tailed horned lizard modeled habitat is only conserved in the Imperial Borrego Valley, mostly in existing conservation. Tehachapi slender salamander modeled habitat occurs in the Tehachapi Mountains where conservation is primarily composed of BLM LUPA conservation designations. Furthermore, the siting of the DFAs under the Preferred Alternative largely avoid habitat for Mojave fringe-toed lizard and Tehachapi slender salamander, and CMAs that require avoidance of and setbacks from riparian habitat, wetland habitat, and dune habitat would further avoid and minimize the impacts on these species.

Conservation of bird species associated primarily with wetland and riparian habitats, including California black rail, least Bell's vireo, southwestern willow flycatcher, tricolored blackbird, western yellow-billed cuckoo, and Yuma clapper rail would be augmented by CMAs requiring avoidance of and setbacks from riparian and wetland habitats. Conservation of Bendire's thrasher occurs in nearly every subarea of the Plan Area. Burrowing owl, widespread, but mainly associated with open areas in the West Mojave and Eastern Slopes would have almost half of its conserved acreage in BLM LUPA conservation designations.

California condor mainly occurs in the West Mojave and Eastern Slopes subarea so the majority of conserved condor suitable habitat is also in this subarea. Golden eagle modeled suitable habitat and associated conservation is widespread in the Plan Area with much of the conservation in BLM LUPA conservation designations. Swainson's hawk is primarily associated with the West Mojave and Eastern Slopes, Imperial Borrego Valley, and Owens River Valley subareas; less than a quarter of the available suitable habitat is conserved in each of these subareas. However, in addition to conservation of suitable habitat, CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs.

Modeled suitable habitat for Gila woodpecker is conserved in the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, and Piute Valley and Sacramento Mountains subareas. Of the total conservation of mountain plover suitable habitat, most is in Conservation Planning Areas in the West Mojave and Eastern Slopes subarea.

Conservation of suitable habitat for desert pupfish and Mohave tui chub is mostly in existing conservation areas. Although conservation of desert pupfish is relatively low, avoidance and setback provisions for managed wetlands and agricultural drains would conserve wetland and riparian features within the agricultural matrix and provide conservation benefits to desert pupfish. Owens pupfish and Owens tui chub are conserved primarily in Conservation Planning Areas.

Conservation of suitable habitat for bighorn sheep, both inter-mountain and mountain habitat, is widespread and is mainly in BLM LUPA conservation designations and existing conservation areas. The siting of the DFAs under the Preferred Alternative largely avoid habitat for bighorn sheep. Most of the conservation of burro deer suitable habitat is from BLM LUPA conservation designations. About half of the conservation of Mohave ground squirrel suitable habitat is from BLM LUPA conservation designations. Suitable habitat for the covered bat species—California leaf-nosed bat, pallid bat, and Townsend's big-eared bat—and desert kit fox is widespread. In addition to conservation of suitable habitat for covered mammal species, the CMAs require avoidance of and setbacks from riparian and wetland habitat that would reduce impacts on these habitats used by Mohave ground squirrel, California leaf-nosed bat, pallid bat, and Townsend's big-eared bat.

Conservation of plant species ranges from 7% of suitable habitat for alkali mariposa-lily to 45% of suitable habitat for Barstow woolly sunflower. The proportion of suitable habitat conserved in existing conservation, BLM LUPA conservation designations, and Conservation Planning Areas varies by species. However, in addition to the conservation of modeled suitable habitat, the CMAs require surveys for plant Covered Species for all Covered Activities, and the CMAs requiring avoidance of and setbacks from occupied habitat would further reduce the impacts on these species.

In addition to conservation of suitable habitat for Covered Species, compensation CMAs would offset habitat loss for all Covered Species.

Table IV.7-93
GCP Conservation Analysis for Covered Species Habitat – Preferred Alternative

Species	Available Lands (acres)	Existing Conservation[1] (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Amphibian/Reptile						
Agassiz's desert tortoise	2,248,000	140,000	325,000	176,000	642,000	29%
Flat-tailed horned lizard	310,000	112,000	20,000	3,000	135,000	44%
Mojave fringe-toed lizard	168,000	3,000	16,000	10,000	30,000	18%
Tehachapi slender salamander	41,000	300	6,000	500	7,000	17%
Bird						
Bendire's thrasher	405,000	35,000	31,000	26,000	93,000	23%
Burrowing owl	3,244,000	73,000	231,000	176,000	480,000	15%
California black rail	127,000	5,000	500	6,000	11,000	9%
California condor	997,000	43,000	42,000	39,000	124,000	12%
Gila woodpecker	56,000	4,000	1,000	2,000	7,000	12%
Golden eagle–foraging	1,498,000	154,000	235,000	109,000	498,000	33%
Golden eagle–nesting	676,000	108,000	72,000	41,000	222,000	33%
Greater sandhill crane	601,000	5,000	500	1,000	7,000	1%
Least Bell's vireo	104,000	9,000	7,000	17,000	33,000	31%
Mountain plover	811,000	6,000	2,000	11,000	20,000	2%
Southwestern willow flycatcher	258,000	6,000	15,000	17,000	39,000	15%
Swainson's hawk	1,339,000	15,000	30,000	62,000	107,000	8%
Tricolored blackbird	257,000	6,000	2,000	15,000	24,000	9%
Western yellow-billed cuckoo	111,000	2,000	5,000	23,000	31,000	28%
Yuma clapper rail	31,000	3,000	10	2,000	5,000	16%

Table IV.7-93
GCP Conservation Analysis for Covered Species Habitat – Preferred Alternative

Species	Available Lands (acres)	Existing Conservation[1] (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Fish						
Desert pupfish	7,000	800	10	200	1,000	14%
Mohave tui chub	100	70	-	20	90	63%
Owens pupfish	13,000	-	700	4,000	4,000	32%
Owens tui chub	13,000	-	700	4,000	4,000	32%
Mammal						
Bighorn sheep – inter-mountain habitat	465,000	40,000	63,000	22,000	124,000	27%
Bighorn sheep – mountain habitat	807,000	149,000	76,000	56,000	281,000	35%
California leaf-nosed bat	979,000	137,000	131,000	51,000	319,000	33%
Mohave ground squirrel	1,319,000	51,000	188,000	146,000	384,000	29%
Pallid bat	3,775,000	393,000	432,000	258,000	1,083,000	29%
Townsend's big-eared bat	3,510,000	308,000	389,000	240,000	937,000	27%
Plant						
Alkali mariposa-lily	117,000	200	70	8,000	8,000	7%
Bakersfield cactus	200,000	17,000	10,000	3,000	31,000	15%
Barstow woolly sunflower	82,000	3,000	21,000	9,000	33,000	41%
Desert cymopterus	137,000	2,000	29,000	15,000	47,000	34%
Little San Bernardino Mountains linanthus	130,000	5,000	6,000	7,000	18,000	14%

Table IV.7-93
GCP Conservation Analysis for Covered Species Habitat – Preferred Alternative

Species	Available Lands (acres)	Existing Conservation[1] (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Mojave monkeyflower	41,000	100	13,000	300	14,000	34%
Mojave tarplant	129,000	19,000	13,000	2,000	34,000	26%
Owens Valley checkerbloom	92,000	200	5,000	18,000	22,000	25%
Parish's daisy	72,000	19,000	8,000	2,000	29,000	40%
Triple-ribbed milk-vetch	3,000	900	10	400	1,000	43%

[1] Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on nonfederal land

[2] Includes nonfederal inholdings within existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations)

[3] Conservation Planning Areas include areas of the reserve design from which reserve areas would be assembled on private and other public land.

Notes: Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore, the subtotals may not sum to the total within the table.

For Agassiz's desert tortoise, desert tortoise important areas were identified that include tortoise conservation areas (TCAs), desert tortoise linkages, and desert tortoise high priority habitat (see desert tortoise BGOs in Appendix C). Table IV.7-94 provides a conservation analysis for these desert tortoise important areas, organized by desert tortoise Recovery Units: Colorado Desert, Eastern Mojave, and Western Mojave. Within the Colorado Desert Recovery Unit, 35% of TCAs, linkage habitat, and high priority habitat would be conserved under the Preferred Alternative. Within the Eastern Mojave Recovery Unit, 24% of the important areas would be conserved under the Preferred Alternative. Within the Western Mojave Recovery Unit, 35% of TCAs and linkage habitat would be conserved under the Preferred Alternative. CMAs would require avoidance of TCAs, except for impacts associated with transmission or impacts in disturbed portions of TCAs. Additionally, the CMAs would prohibit impacts that affect the viability of desert tortoise linkages. Compensation CMAs would be required for impacts to desert tortoise, including desert tortoise important areas.

Table IV.7-94
GCP Conservation Analysis for
Desert Tortoise Important Areas – Preferred Alternative

Recovery Unit	Desert Tortoise Important Areas	Available Lands (acres)	Existing Conservation[1] (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Colorado Desert	High Priority Habitat	31,000	800	5,000	4,000	10,000	33%
	Linkage	63,000	100	8,000	4,000	12,000	20%
	TCA	269,000	16,000	75,000	14,000	106,000	39%
Colorado Desert Total		*363,000*	*17,000*	*89,000*	*23,000*	*128,000*	*35%*
Eastern Mojave	Linkage	56,000	4,000	4,000	4,000	12,000	21%
	TCA	66,000	6,000	3,000	8,000	18,000	27%
Eastern Mojave Total		*122,000*	*10,000*	*7,000*	*12,000*	*29,000*	*24%*
Western Mojave	Linkage	407,000	2,000	31,000	25,000	58,000	14%
	TCA	392,000	23,000	191,000	6,000	220,000	56%
Western Mojave Total		*798,000*	*25,000*	*223,000*	*31,000*	*278,000*	*35%*
Grand Total		**1,283,000**	**52,000**	**319,000**	**66,000**	**436,000**	**34%**

1 Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on nonfederal land

2 Includes nonfederal inholdings within existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations)

3 Conservation Planning Areas include areas of the reserve design from which reserve areas would be assembled on private and other public land.

Notes: Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For Mohave ground squirrel, Mohave ground squirrel important areas were identified that include key population centers, linkages, expansion areas, and climate change extension areas (see Mohave ground squirrel BGOs in Appendix C). Table IV.7-95 provides a conservation analysis for these Mohave ground squirrel important areas. Approximately 44% of key populations centers and 50% of linkages would be conserved under the Preferred Alternative. Expansion areas and climate change extension areas would be conserved at 50% and 32% respectively. CMAs would require protocol surveys in population centers and linkages, as well as provide other measures to offset the loss of habitat for Mohave ground squirrel. Additionally, the CMAs would prohibit impacts that affect the viability of linkages. Compensation CMAs would be required for impacts to Mohave ground squirrel, including Mohave ground squirrel important areas.

Table IV.7-95
GCP Conservation Analysis for Mohave Ground Squirrel Important Areas – Preferred Alternative

Mohave Ground Squirrel Important Area Type	Available Lands (acres)	Existing Conservation[1] (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Key Population Center	193,000	14,000	49,000	23,000	85,000	44%
Linkage	103,000	3,000	28,000	21,000	52,000	50%
Expansion Area	258,000	21,000	59,000	49,000	129,000	50%
Climate Change Extension	131,000	13,000	5,000	24,000	42,000	32%
Total	**684,000**	**50,000**	**141,000**	**117,000**	**308,000**	**45%**

1 Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on nonfederal land

2 Includes nonfederal inholdings within existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations)

3 Conservation Planning Areas include areas of the reserve design from which reserve areas would be assembled on private and other public land.

Notes: Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore, the subtotals may not sum to the total within the table.

Within the Plan Area, critical habitat has been designated by the USFWS for the following Covered Species: desert tortoise, southwestern willow flycatcher, desert pupfish, and

Parish's daisy. For desert tortoise, approximately 50% of the desert tortoise designated critical habitat on nonfederal lands would be conserved under the Preferred Alternative, including 30,000 acres in existing conservation areas, 232,000 acres in BLM LUPA conservation designations, and 14,000 acres in Conservation Planning Areas. For southwestern willow flycatcher, approximately 60% of the southwestern willow flycatcher designated critical habitat on nonfederal lands would be conserved in Reserve Design Lands under the Preferred Alternative, including 600 acres in existing conservation areas, 30 acres in BLM LUPA conservation designations, and 3,000 acres in Conservation Planning Areas. For desert pupfish, approximately 76% of the desert pupfish designated critical habitat on nonfederal lands would be conserved in Reserve Design Lands under the Preferred Alternative, including 100 acres in existing conservation areas and 100 acres in BLM LUPA conservation designations. For Parish's daisy, approximately 36% of the Parish's daisy designated critical habitat on nonfederal lands would be conserved in Reserve Design Lands under the Preferred Alternative, including 200 acres in BLM LUPA conservation designations.

Non-Covered Species Critical Habitat

Eight Non-Covered Species have Critical Habitat within GCP Lands. Table IV.7-96 shows the total amount of Critical Habitat and the amount within each reserve designation for Non-Covered Species. These reserve designations are considered beneficial impacts for biological resources. All or a substantial portion of each species' Critical Habitat in the GCP Lands would be within one of the conservation designations. Critical Habitat for bighorn sheep occurs mostly within existing conservation and within Conservation Planning Areas for arroyo toad, but mostly within nonfederal inholdings on BLM land for the other species.

Table IV.7-96
Critical Habitat Within GCP Lands for Non-Covered Species – Preferred Alternative

Common Name	Acres of Critical Habitat within GCP Lands	Acres of Critical Habitat in Existing Conservation	Acres of Critical Habitat in BLM LUPA Lands (Nonfederal Inholdings)	Acres of Critical Habitat in Conservation Planning Areas	Acres in Conservation
Amargosa vole	600	0	300	0	300
Arroyo toad	4,000	0	0	3,000	3,000
Cushenbury buckwheat	200	0	100	0	100
Cushenbury milk-vetch	200	0	100	0	100
Cushenbury oxytheca	30	0	30	0	30
Lane Mountain milk-vetch	2,000	0	2,000	0	2,000
Pierson's milk-vetch	400	0	0	400	400
Peninsular Bighorn sheep	40,000	36,000	0	300	36,300

Note: The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore, the subtotals may not sum to the total within the table.

IV.7.3.2.5 Impacts Outside of Plan Area

IV.7.3.2.5.1 Impacts of Transmission Out of Plan Area

The impacts of Out of Plan Area transmission on biological resources would be the same under all alternatives. These impacts are as described for the No Action Alternative in Section IV.7.3.1.6.1 (Impacts of Transmission Out of Plan Area in No Action Alternative).

IV.7.3.2.5.2 Impacts of BLM LUPA Decisions Outside of Plan Area

Natural Communities and Other Land Covers

There are 1,058,000 acres of natural communities in BLM LUPA lands outside the plan area. Of these, 219,000 acres would be proposed NLCS lands and 187,000 would be existing and proposed ACECs, for a total of 346,000 acres (accounting for overlapping designations) of natural communities in BLM LUPA conservation under the Preferred Alternative.

Table IV.7-97
Estimated Acres of Natural Communities in
BLM LUPA Outside of Plan Area – Preferred Alternative

Natural Communities	Natural Communities within BLM LUPA Lands Outside Plan Area (acres)	BLM LUPA Designation†		Total Natural Communities in BLM LUPA Conservation (acres)
		Proposed NLCS (acres)	*Existing & Proposed ACECs (acres)*	
Dune/Rocky, Barren, and Un-vegetated Communities				
Barren	23,000	3,000	3,000	4,000
Forest/Woodland Communities				
Closed-Cone Pine-Cypress	300	0	200	200
Jeffrey Pine	30	0	0	0
Juniper	32,000	6,000	7,000	7,000
Montane Hardwood	300	0	0	0
Pinyon-Juniper	73,000	10,000	10,000	13,000
Ponderosa Pine	1,000	0	0	0
Sierran Mixed Conifer	100	0	0	0
Subalpine Conifer	200	0	0	0
Grassland Communities				
Annual Grassland	6,000	20	0	20
Riparian/Wetland Communities				
Desert Riparian	200	0	200	200
Desert Wash	22,000	9,000	9,000	9,000

Table IV.7-97
Estimated Acres of Natural Communities in BLM LUPA Outside of Plan Area – Preferred Alternative

Natural Communities	Natural Communities within BLM LUPA Lands Outside Plan Area (acres)	BLM LUPA Designation†		Total Natural Communities in BLM LUPA Conservation (acres)
		Proposed NLCS (acres)	*Existing & Proposed ACECs (acres)*	
Freshwater Emergent Wetland	1,000	0	0	0
Lacustrine	100	20	20	20
Scrub and Chaparral Communities				
Alkali Desert Scrub	190,000	43,000	11,000	45,000
Chamise-Redshank Chaparral	8,000	2,000	4,000	5,000
Coastal Scrub	0	0	0	0
Desert Scrub	573,000	126,000	129,000	237,000
Desert Succulent Shrub	35,000	3,000	1,000	3,000
Joshua Tree	21,000	2,000	2,000	3,000
Low Sage	3,000	3,000	1,000	3,000
Mixed Chaparral	13,000	3,000	5,000	7,000
Sagebrush	49,000	8,000	4,000	8,000
Other Land Covers				
Cropland	4,000	0	0	0
Irrigated Hayfield	400	20	0	20
Urban	1,000	200	300	300
Total	**1,058,000**	**219,000**	**187,000**	**346,000**

Source: State of California GAP GIS data for vegetation classifications (Davis et al. 1998).
Note: The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore, the subtotals may not sum to the total within the table.

Special-Status Species

Many special-status species are known to occur within proposed or existing conservation areas within the BLM LUPA lands outside of the Plan Area. See Table IV.7-98 below for the list of special-status species within conservation areas. Refer to Table IV.7-92 above to see the natural communities present within the conservation areas that provide habitat for these species. Table IV.7-50 provides a cross-walk for the special-status species and the natural communities that provide habitat for these species.

In order to analyze how the preservation and conservation of the BLM LUPA lands outside of the Plan Area will affect the special-status species listed below, the preferred BLM LUPA conservation land boundaries within the CDCA but outside of the DRECP plan area were applied to the species' occurrence data available from CNDDB. Based on this analysis the preferred alternative is expected to beneficially affect the 109 species shown in Table IV.7-98 that are known to occur within the conservation lands, and the natural communities that provide habitat for these species shown in Table IV.7-92 above. Under the Preferred Alternative, 43 species, dominated by plant species, are not present within existing and proposed BLM LUPA conservation lands.

Table IV.7-98
Special-Status Species Occurring in BLM LUPA Outside of Plan Area – Preferred Alternative

Special-Status Species Present	Federal Status[1]	State Status[2]	Present in BLM LUPA Conservation Lands (Proposed NLCS and Existing and Proposed ACECs)
Amphibians/Reptiles			
Agassiz's desert tortoise	FT	ST	Y
arroyo toad	FE	CSC	Y
barefoot gecko	BLM	ST	Y
coast horned lizard	-	CSC	Y
Coachella fringe-toed lizard	FE	SC	Y
Couch's spadefoot	BLM	CSC	N
flat-tailed horned lizard	BLM, FS	CSC	Y
rosy boa	BLM, FS	-	Y
Sierra Madre yellow-legged frog	FE	SC, CSC	Y
Fish			
desert pupfish	FE	SE	Y
Mohave tui chub	FE	SE	Y
Birds			
burrowing owl	-	CSC	Y
California black rail	BLM, BCC	ST	Y
crissal thrasher	BLM, BCC	CSC	N
gray vireo	BLM, BCC	CSC	N
golden eagle	BGEPA	FP	Y
Inyo California towhee	FT	SE	Y
Le Conte's thrasher	BLM	CSC	Y
least Bell's vireo	FE	SE	N

Table IV.7-98
Special-Status Species Occurring in BLM LUPA Outside of Plan Area – Preferred Alternative

Special-Status Species Present	Federal Status[1]	State Status[2]	Present in BLM LUPA Conservation Lands (Proposed NLCS and Existing and Proposed ACECs)
loggerhead shrike	BCC	CSC	N
long-eared owl	BLM	CSC	Y
prairie falcon	BCC	-	Y
Swainson's hawk	BLM	ST	Y
southwestern willow flycatcher	FE	SE	Y
vermilion flycatcher	-	CSC	Y
western snowy plover	FT	CSC	Y
yellow warbler	BCC	CSC	Y
Yuma clapper-rail	FE, BCC	ST, FP	Y
Mammals			
American badger	-	CSC	Y
big free-tailed bat	-	CSC	N
hoary bat	-	WBWG	Y
long-eared myotis	BLM	-	N
Mojave ground squirrel	-	ST	Y
Nelson's bighorn sheep	BLM	-	Y
Palm Springs pocket mouse	BLM	CSC	Y
pallid bat	BLM	CSC	Y
Peninsular bighorn sheep	FE, BLM	ST, FP	Y
pocketed free-tailed bat	-	CSC	Y
spotted bat	BLM	CSC	Y
Townsend's big-eared bat	BLM	CSC	Y
western mastiff bat	BLM	CSC	Y
western small-footed myotis	BLM	-	Y
western yellow bat	-	CSC	N
Plants			
Abrams' spurge	-	(CRPR 2.2)	N
Amargosa beardtongue	BLM	(CRPR 1B.3)	Y
annual rock-nettle	-	(CRPR 2.2)	Y
Arizona pholistoma	-	(CRPR 2.3)	Y
Arizona spurge	-	(CRPR 2.3)	Y
Ash Meadows buckwheat	-	(CRPR 2.3)	Y

Table IV.7-98
Special-Status Species Occurring in BLM LUPA Outside of Plan Area – Preferred Alternative

Special-Status Species Present	Federal Status[1]	State Status[2]	Present in BLM LUPA Conservation Lands (Proposed NLCS and Existing and Proposed ACECs)
Bailey's greasewood	-	(CRPR 2.3)	Y
Barneby's phacelia	-	(CRPR 2.3)	N
black bog-rush	-	(CRPR 2.2)	N
bristly scaleseed	-	(CRPR 2.3)	N
brown turbans	-	(CRPR 2.3)	Y
California ayenia	-	(CRPR 2.3)	N
California satintail	-	(CRPR 2.1)	Y
California saw-grass	-	(CRPR 2.2)	Y
chaparral sand-verbena	-	(CRPR 1B.1)	Y
Charlotte's phacelia	BLM	(CRPR 1B.2)	Y
Chimney Creek nemacladus	-	(CRPR 1B.2)	N
Coachella Valley milk-vetch	FE	(CRPR 1B.2)	Y
Cove's cassia	-	(CRPR 2.2)	Y
creamy blazing star	-	(CRPR 1B.3)	Y
curly herissantia	-	(CRPR 2.3)	Y
Cushenbury buckwheat	FE	(CRPR 1B.1)	Y
Cushenbury oxytheca	FE	(CRPR 1B.1)	Y
Death Valley sandpaper-plant	-	(CRPR 1B.2)	Y
Dedecker's clover	-	(CRPR 1B.3)	N
desert beauty	-	(CRPR 2.3)	N
desert spike-moss	-	(CRPR 2.2)	Y
dwarf germander	-	(CRPR 2.2)	N
Emory's crucifixion-thorn	-	(CRPR 2.2)	N
forked buckwheat	-	(CRPR 1B.2)	N
Geyer's milk-vetch	-	(CRPR 2.2)	Y
Gilman's buckwheat	-	(CRPR 1B.3)	Y
Gilman's cymopterus	-	(CRPR 2.3)	Y
Gilman's goldenbush	-	(CRPR 1B.3)	N
glandular ditaxis	-	(CRPR 2.2)	N
Greene's rabbitbrush	-	(CRPR 2.3)	N
hairy stickleaf	-	(CRPR 2.3)	Y
Hall's daisy	-	(CRPR 1B.3)	N
Harwood's milk-vetch	-	(CRPR 2.2)	Y

Table IV.7-98
Special-Status Species Occurring in BLM LUPA Outside of Plan Area – Preferred Alternative

Special-Status Species Present	Federal Status[1]	State Status[2]	Present in BLM LUPA Conservation Lands (Proposed NLCS and Existing and Proposed ACECs)
Hoffmann's buckwheat	-	(CRPR 1B.3)	Y
Holmgren's lupine	-	(CRPR 2.3)	N
inflated Cima milk-vetch	-	(CRPR 1B.3)	Y
intermontane lupine	-	(CRPR 2.3)	Y
Inyo blazing star	-	(CRPR 1B.3)	Y
Inyo County star-tulip	-	(CRPR 1B.1)	Y
Inyo rock daisy	-	(CRPR 1B.2)	Y
jackass-clover	-	(CRPR 2.2)	Y
Jacumba milk-vetch	-	(CRPR 1B.2)	N
July gold	-	(CRPR 1B.3)	Y
Kelso Creek monkeyflower	BLM	(CRPR 1B.2)	Y
Kern Plateau bird's-beak	-	(CRPR 1B.3)	N
Kern River evening-primrose	-	(CRPR 1B.3)	Y
King's eyelash grass	-	(CRPR 2.3)	Y
knotted rush	-	(CRPR 2.3)	Y
Lancaster milk-vetch	-	(CRPR 1B.1)	N
Las Animas colubrina	-	(CRPR 2.3)	Y
Latimer's woodland-gilia	-	(CRPR 1B.2)	Y
little-leaf elephant tree	-	(CRPR 2.3)	N
long-stem evening-primrose	-	(CRPR 2.2)	Y
Mexican hulsea	-	(CRPR 2.3)	Y
Mormon needle grass	-	(CRPR 2.3)	N
Mountain Springs bush lupine	-	(CRPR 1B.3)	Y
Muir's tarplant	-	(CRPR 1B.3)	N
Nevada oryctes	-	(CRPR 2.1)	Y
Nine Mile Canyon phacelia	-	(CRPR 1B.2)	Y
Orcutt's linanthus	-	(CRPR 1B.3)	Y
Orcutt's woody-aster	-	(CRPR 1B.2)	Y
Orocopia sage	BLM	(CRPR 1B.3)	Y
Owen's Valley checkerbloom	BLM	SE (CRPR 1B.1)	Y
Owens Peak lomatium	-	(CRPR 1B.3)	N
Palmer's mariposa-lily	-	(CRPR 1B.2)	N
Panamint daisy	-	(CRPR 1B.2)	Y

Table IV.7-98
Special-Status Species Occurring in BLM LUPA Outside of Plan Area – Preferred Alternative

Special-Status Species Present	Federal Status[1]	State Status[2]	Present in BLM LUPA Conservation Lands (Proposed NLCS and Existing and Proposed ACECs)
Panamint dudleya	-	(CRPR 1B.3)	Y
Panamint Mountains buckwheat	-	(CRPR 1B.3)	Y
Panamint Mountains lupine	-	(CRPR 1B.2)	Y
Panamint rock-goldenrod	-	(CRPR 2.3)	Y
Parish's daisy	FT	(CRPR 1B.1)	Y
Parish's desert-thorn	-	(CRPR 2.3)	Y
Parry's monkeyflower	-	(CRPR 2.3)	Y
Parry's spineflower	-	(CRPR 1B.1)	Y
Pierson's milk-vetch	FT	SE	N
pink fairy-duster	-	(CRPR 2.3)	Y
Pinyon Mesa buckwheat	-	(CRPR 1B.3)	Y
pinyon rockcress	-	(CRPR 2.3)	Y
prairie wedge grass	-	(CRPR 2.2)	Y
pygmy lotus	-	(CRPR 1B.3)	Y
Ripley's aliciella	-	(CRPR 2.3)	Y
Robison's monardella	-	(CRPR 1B.3)	Y
Robbins' nemacladus	-	(CRPR 1B.2)	N
San Bernardino aster	-	(CRPR 1B.2)	Y
San Bernardino milk-vetch	-	(CRPR 1B.2)	Y
San Diego button-celery	FE	SE, (CRPR 1B.1)	Y
sanicle cymopterus	-	(CRPR 1B.2)	N
Santa Rosa Mountains leptosiphon	-	(CRPR 1B.3)	N
Shockley's milk-vetch	-	(CRPR 2.2)	N
Shockley's rockcress	-	(CRPR 2.2)	Y
slender cottonheads	-	(CRPR 2.2)	N
slender-leaved ipomopsis	-	(CRPR 2.3)	Y
southern jewel-flower	-	(CRPR 1B.3)	N
Spanish needle onion	BLM	(CRPR 1B.3)	N
spear-leaf matelea	-	(CRPR 2.3)	Y
spiny-hair blazing star	-	(CRPR 2.1)	Y
sticky geraea	-	(CRPR 2.3)	Y

Table IV.7-98
Special-Status Species Occurring in BLM LUPA Outside of Plan Area – Preferred Alternative

Special-Status Species Present	Federal Status[1]	State Status[2]	Present in BLM LUPA Conservation Lands (Proposed NLCS and Existing and Proposed ACECs)
sweet-smelling monardella	-	(CRPR 1B.3)	N
triple –ribbed milk-vetch	FE	(CRPR 1B.2)	Y
Wheeler's dune-broom	-	(CRPR 2.2)	Y
white-bracted spineflower	-	(CRPR 1B.2)	Y
Wildrose Canyon buckwheat	-	(CRPR 1B.3)	N
yellow ivesia	-	(CRPR 2.3)	N

Notes:
CRPR = California Rare Plant Rank; Y = yes, present; N = not present

1 Federal Status – FE: Federally Endangered; FT: Federally Threatened; FD: Federally Delisted; FS: Forest Service Sensitive; BLM: Bureau Land Management Sensitive; BCC: Service Bird of Conservation Concern; BGEPA: Bald and Golden Eagle Protection Act.

2 State Status – SE: California Endangered; ST: California Threatened; SC: California Candidate for listing; CSC: California Species of Concern; FP: Fully Protected; WBWG: Western Bat Working Group species. California Rare Plant Rank (CRPR, formerly known as the CNPS List) - CRPR 1B: Considered rare, threatened, or endangered in California and elsewhere; CRPR 2: Considered rare, threatened, or endangered in California, but more common elsewhere; CRPR 3: Plants which need more information; CRPR 4: Limited distribution – a watch list.

Critical Habitat for Special-Status Species

Six Special-status Species have Critical Habitat within BLM Lands outside the Plan Area. Table IV.7-99 shows the total amount of Critical Habitat and the amount within each BLM land designation for each species. No Critical Habitat for the least Bell's vireo would occur within BLM Conservation Designation. The largest portion of Critical Habitat for the remaining species would be within Areas of Critical Environmental Concern, with additional amounts within National Conservation Lands, with both designations providing specific protections for biological resources. Critical Habitat for all species except Coachella Valley fringe-toed lizard and least Bell's vireo would occur within Special Recreation Management Areas, which would also be managed to protect Critical Habitat.

Table IV.7-99
Critical Habitat Within BLM LUPA Conservation Designations for Special-Status Species Outside the Plan Area – Preferred Alternative

Common Name	Acres of Critical Habitat within BLM LUPA Lands	NLCS (acres)	ACEC (acres)	SRMA (acres)	Total[1] in BLM Designations
Coachella Valley milk-vetch	10,000	400	500	1,000	1,900
Inyo California towhee	2,000	20	800	500	1,320
Peninsular Bighorn sheep	317,000	4,000	9,000	200	13,200
Coachella Valley fringe-toed lizard	12,000	2,000	2,000	0	4,000
Desert tortoise	173,000	30,000	99,000	55,000	184,000
Least Bell's vireo	600	0	0	0	0

[1] Includes overlapping designations

Note: The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore, the subtotals may not sum to the total within the table.

Landscape Habitat Linkages and Wildlife Movement Corridors

As detailed in Vol. III.7.13.2.4, Landscape Habitat Linkages and Wildlife Movement Corridors, there are important linkages and corridors North of the Plan Area within the Owens Valley, and Inyo Mountains, and Southwest of the Plan Area within and adjacent to the Coachella Valley. The NCLS lands and ACECs proposed for the Preferred Alternative offer protection at critical locations within these corridors, providing a benefit to Landscape Habitat Linkages and Wildlife Movement Corridors outside of the Plan Area.

IV.7.3.2.6 CEQA Significance Determination for the Preferred Alternative

Impact BR-1: Siting, construction, decommissioning, and operational activities would result in loss of native vegetation.

The Preferred Alternative would result in loss of native vegetation that would be an adverse impact to natural communities and the species these communities support. These impacts would be concentrated in the Cadiz Valley and Chocolate Mountains, Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas and would predominantly impact desert scrubs, wetlands, grasslands, and desert outcrop and badlands. The adverse effects of the loss of native vegetation would be avoided and minimized through the implementation of avoidance and minimization CMAs and

compensation CMAs established to offset the impacts of Covered Activities. These CMAs would contribute to the overall DRECP conservation strategy, which includes conservation within Reserve Design Lands and a coordinated Monitoring and Adaptive Management Program. Implementation of the CMAs as part of the overall DRECP conservation strategy, plus implementation of Mitigation Measure BR-1a for rare natural communities, would reduce the adverse effects from the loss of native vegetation to a less than significant impact with mitigation.

Impact BR-2: Siting, construction, decommissioning, and operational activities would result in adverse effects to jurisdictional waters and wetlands.

The Preferred Alternative would result in adverse effects to jurisdictional waters and wetlands. These impacts would occur in saltbush scrub and playa natural communities determined to be jurisdictional and open water areas of the Salton Sea. The adverse effects to jurisdictional waters and wetlands would be avoided and minimized through the implementation existing applicable laws and regulations, through implementation of avoidance and minimization CMAs, and through compensation CMAs established to offset the impacts of Covered Activities. These CMAs would contribute to the overall DRECP conservation strategy, which includes conservation within Reserve Design Lands and a coordinated Monitoring and Adaptive Management Program. Implementation of the CMAs as part of the overall DRECP conservation strategy would reduce the adverse effects to jurisdictional waters and wetlands to a less than significant impact.

Impact BR-3: Siting, construction, decommissioning, and operational activities would result in degradation of vegetation.

The Preferred Alternative would result in degradation of vegetation that would be an adverse impact to natural communities and the species these communities support. These impacts would be concentrated in the Cadiz Valley and Chocolate Mountains, Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas and would predominantly impact desert scrubs, wetlands, grasslands, and desert outcrop and badlands. The adverse effects of vegetation degradation would be avoided and minimized through the implementation of avoidance and minimization CMAs and compensation CMAs established to offset the impacts of Covered Activities. These CMAs would contribute to the overall DRECP conservation strategy, which includes conservation within Reserve Design Lands and a coordinated Monitoring and Adaptive Management Program. Implementation of the CMAs as part of the overall DRECP conservation strategy would reduce the adverse effects of degradation of vegetation to a less than significant impact.

Impact BR-4: Siting, construction, decommissioning, and operational activities would result in loss of listed and sensitive plants; disturbance, injury, and mortality of listed and sensitive wildlife; and habitat for listed and sensitive plants and wildlife.

The Preferred Alternative would result in an adverse impact to listed and sensitive plants and wildlife and habitat for listed and sensitive plant and wildlife. These impacts would be concentrated in the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, Pinto Lucerne Valley and Eastern Slopes, and West Mojave and Eastern Slopes subareas. The adverse effects plant and wildlife Covered Species loss and habitat loss would be avoided and minimized through the implementation of avoidance and minimization CMAs and compensation CMAs established to offset the impacts of Covered Activities. These CMAs would contribute to the overall DRECP conservation strategy, which includes conservation within Reserve Design Lands and a coordinated Monitoring and Adaptive Management Program. Implementation of the CMAs as part of the overall DRECP conservation strategy, would reduce the adverse effects from the loss plants and wildlife and their habitat to a less than significant impact.

Implementation of the CMAs as part of the overall DRECP conservation strategy would also reduce the adverse effects from the loss of plant and wildlife Non-Covered Species and their habitat to a less than significant impact.

Impact BR-5: Siting, construction, decommissioning, and operational activities could result in loss of nesting birds (violation of the federal Migratory Bird Treaty Act and California Fish and Game Code Sections 3503, 3503.5, 3511, and 3513).

The Preferred Alternative has the potential to result in an adverse impact resulting from the loss of nesting birds. These impacts have the potential to occur anywhere Covered Activities are implemented. This potential adverse would be avoided and minimized through the implementation of avoidance and minimization CMAs developed to comply with existing applicable laws and regulations related to nesting birds. Implementation of the CMAs would reduce the potential adverse effects of the loss of nesting birds to a less than significant impact.

Impact BR-6: Siting, construction, decommissioning, and operational activities would adversely affect habitat linkages and wildlife movement corridors, the movement of fish, and native wildlife nursery sites.

The Preferred Alternative would result in adverse impacts to habitat linkages and wildlife movement corridors. These impacts to habitat linkages and movement of migratory birds would be concentrated in the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas. The potential adverse effects to habitat linkages and wildlife movement would

avoided and minimized through the implementation of the DRECP conservation strategy, including the DRECP Plan-Wide Reserve Design Envelope for the Preferred Alternative and the Monitoring and Adaptive Management Program. Additionally, impacts of habitat fragmentation and population isolation would be avoided and minimized through requiring renewable energy development to occur within DFAs and through the implementation of avoidance and minimization CMAs and compensation CMAs established to offset the impacts of Covered Activities. Implementation of the CMAs as part of the overall DRECP conservation strategy would reduce the adverse effects on habitat linkages and wildlife movement to a less than significant impact.

Impact BR-7: Siting, construction, decommissioning, and operational activities would result in habitat fragmentation and isolation of populations of listed and sensitive plants and wildlife.

The Preferred Alternative would have the potential to result in adverse impacts of habitat fragmentation and population isolation. The potential adverse effects of habitat fragmentation and population isolation would avoided and minimized through the implementation of the DRECP conservation strategy, including the DRECP Plan-Wide Reserve Design Envelope for the Preferred Alternative and the Monitoring and Adaptive Management Program. Additionally, impacts of habitat fragmentation and population isolation would be avoided and minimized through requiring renewable energy development to occur within DFAs and through the implementation of avoidance and minimization CMAs and compensation CMAs established to offset the impacts of Covered Activities. Implementation of the DRECP and the CMAs as part of the overall DRECP conservation strategy would reduce the adverse effects of habitat fragmentation and population isolation to a less than significant impact.

Impact BR-8: Construction of generation facilities or transmission lines would result in increased predation of listed and sensitive wildlife species.

The Preferred Alternative would result in an increase in predator populations in the Plan Area, which would adversely affect susceptible Covered Species. As part of the overall DRECP conservation strategy, implementation of a Common Raven Management Plan (AM-PW-6) would reduce the adverse effects to Covered Species to a less than significant impact.

The Preferred Alternative would result in an increase in predator populations in the Plan Area, which would adversely affect susceptible Covered Species. As part of the overall DRECP conservation, strategy implementation of Common Raven management action (AM-PW-6) would reduce the adverse effects to Non-Covered Species to a less than significant impact.

Impact BR-9: Operational activities would result in avian and bat injury and mortality from collisions, thermal flux or electrocution at generation and transmission facilities.

The Preferred Alternative would result in loss of avian and bat Covered Species that would be an adverse impact to avian and bat populations. These impacts would be concentrated in the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, Pinto Lucerne Valley and Eastern Slopes, and West Mojave and Eastern Slopes subareas. The adverse effects of avian and bat injury and mortality would be avoided and minimized through the implementation of avoidance and minimization CMAs and compensation CMAs established to offset the impacts of Covered Activities. These CMAs would contribute to the overall DRECP conservation strategy, which includes conservation within Reserve Design Lands and a coordinated Monitoring and Adaptive Management Program. Implementation of the CMAs as part of the overall DRECP conservation strategy would reduce the adverse effects to a less than significant impact.

The level of impact on avian and bat Non-Covered Species would be as discussed for the Covered Species.

IV.7.3.2.7 Comparison of the Preferred Alternative with No Action Alternative

Chapter IV.27 presents a comparison of all action alternatives and the No Action Alternative across all disciplines. This section summarizes the comparison of the Preferred Alternative with the No Action Alternatives.

IV.7.3.2.7.1 Preferred Alternative Compared with No Action Alternative for Plan-Wide DRECP

The Preferred Alternative would concentrate renewable energy development into approximately 2 million acres of DFAs (9% of the Plan Area) as compared to the over 6 million acres (28% of the Plan Area) open to renewable energy development under the No Action Alternative. The DFAs are largely (87%) sited in areas of low or moderately low terrestrial intactness, whereas only 60% of the areas open to renewable energy development under the No Action Alternative are in areas of low or moderately low terrestrial intactness. The Preferred Alternative would conserve nearly 13 million acres of existing conservation areas, BLM LUPA conservation designations, and Conservation Planning Areas, whereas the No Action Alternative conserves just over 10 million acres in existing protected areas and existing BLM conservation designations. Mitigation that would contribute additional conservation acreage under the No Action Alternative would be project-by-project and would not be part of a desert-wide conservation strategy. Avoidance, minimization, and compensation for the impacts of renewable energy and transmission development projects under the Preferred Alternative would be through the established DRECP CMAs, whereas avoidance, minimization, and compensation for

renewable energy and transmission development under the No Action Alternative would be project-by-project. The following provides a comparative analysis for specific biological resources.

Impacts to Natural Communities

A summary of the differences between effects under the No Action Alternative and the Preferred Alternative is provided below.

California forest and woodlands

Overall, approximately 1,000 acres of California forest and woodlands would be impacted under the No Action Alternative, compared to approximately 100 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts from solar and wind in the Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas under the No Action Alternative.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 1,000 acres of chaparral and coastal scrubs would be impacted under the No Action Alternative, compared to approximately 2,000 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts from wind in the West Mojave and Eastern Slopes subarea, but fewer impacts from all other impacted technology types in the same subarea and in the Pinto Lucerne Valley and Eastern Slopes, including wind development in this subarea.

Desert conifer woodlands

Approximately 1,000 acres of desert conifer woodlands would be impacted under both the No Action Alternative and the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts in the Kingston and Funeral Mountains and West Mojave and Eastern Slopes subarea but fewer impacts in the Pinto Lucerne Valley and Eastern Slopes under the No Action Alternative.

Desert outcrop and badlands

Overall, approximately 11,000 acres of desert outcrop and badlands would be impacted under the No Action Alternative, compared to 10,000 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts in the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, Kingston and Funeral Mountains, Pinto Lucerne Valley and Eastern Slopes, and Providence and Bullion Mountains subareas. However, there are marginally fewer impacts in the Mojave and Silurian Valley and West Mojave and Eastern Slopes subareas.

Desert scrubs

Overall, approximately 95,000 acres of desert scrubs would be impacted under the No Action Alternative, compared to 92,000 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts from solar development and/or transmission in the Cadiz Valley and Chocolate Mountain, Kingston and Funeral Mountains, and Providence and Bullion Mountains subareas. The remaining subareas have the same or greater impacts under the Preferred Alternative.

Dunes

Unlike the Preferred Alternative, under which impacts to dune communities would be minimized since application of the CMAs would require that dune communities be avoided to the maximum extent feasible in DFAs, impacts to dune communities under the No Action Alternative would total approximately 2,000 acres.

Grasslands

Overall, approximately 4,000 acres of grasslands would be impacted under the No Action Alternative, compared to 6,000 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are actually greater impacts in the Imperial Borrego Valley subarea, but the same or fewer impacts in all other subareas, with the greatest difference in the West Mojave and Eastern Slopes subarea.

Riparian

Unlike the Preferred Alternative, under which impacts to riparian communities would be avoided since application of the CMAs would require that riparian communities be avoided to the maximum extent feasible in DFAs, impacts to riparian communities under the No Action Alternative total 8,000 acres.

Wetlands

Overall, approximately 7,000 acres of wetlands would be impacted under the No Action Alternative, compared to 10,000 acres under the Preferred Alternative. Unlike the Preferred Alternative, under which impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep would not occur since application of the CMAs would require that these communities be avoided to the maximum extent feasible in DFAs, including a 0.25-mile setback, impacts to these communities would occur under the No Action Alternative.

Compared to the Preferred Alternative, there are more impacts to wetlands in the Kingston and Funeral Mountains subarea, but the same or fewer impacts in all other subareas.

Conservation of Natural Communities

A summary of the differences between conservation under the No Action Alternative and the Preferred Alternative is provided below. See Section IV.7.3.2.1.2 for a more detailed analysis of the conservation of natural communities under the Preferred Alternative.

California forest and woodlands

Overall, approximately 29,000 acres (20%) of California forest and woodlands would be conserved under the No Action Alternative, compared to 62,000 acres (41%) under the Preferred Alternative. The greatest difference between the two Alternatives would be in the West Mojave and Eastern Slopes subarea.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 17,000 acres (16%) of chaparral and coastal scrubs would be conserved under the No Action Alternative, compared to 31,000 acres (28%) under the Preferred Alternative. Compared to the Preferred Alternative, there is no conservation in the Panamint Death Valley and less conservation in the Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas.

Desert conifer woodlands

Overall, approximately 169,000 acres (59%) of desert conifer woodlands would be conserved under the No Action Alternative, compared to 186,000 acres (65%) under the Preferred Alternative. Compared to the Preferred Alternative, the areas with the largest difference in conservation of desert conifer woodlands between the two alternatives include the Pinto Lucerne Valley and Eastern Slopes, Providence and Bullion Mountains, and West Mojave and Eastern Slopes subareas, each with fewer acres conserved under the No Action Alternative.

Desert outcrop and badlands

Overall, approximately 1,078,000 acres (67%) of desert outcrop and badlands would be conserved under the No Action Alternative, compared to 1,295,000 acres (80%) under the Preferred Alternative. Compared to the Preferred Alternative, there is less conservation of this general community in all subareas with the largest difference in the Cadiz Valley and Chocolate Mountains subarea.

Desert scrubs

Overall, approximately 7,708,000 acres (58%) of desert scrubs would be conserved under the No Action Alternative, compared to 9,729,000 acres (74%) under the Preferred

Alternative. Compared to the Preferred Alternative, there is less conservation of this general community in all subareas except the Piute Valley and Sacramento Mountains subarea. The largest difference between the two alternatives is in the Cadiz Valley and Chocolate Mountains subarea.

Dunes

Overall, approximately 181,000 acres (64%) of dunes would be conserved under the No Action Alternative, compared to 209,000 acres (74%) under the Preferred Alternative. Compared to the Preferred Alternative, there is less conservation of this general community in all subareas except the West Mojave and Eastern Slopes subarea. The largest difference between the two alternatives is in the Cadiz Valley and Chocolate Mountains subarea.

In addition to conservation, impacts to dune communities would be minimized under the Preferred Alternative, but not the No Action Alternative, since application of the CMAs would require that dune communities be avoided to the maximum extent feasible in DFAs. In addition, CMA application under the Preferred Alternative would prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

Grasslands

Overall, approximately 32,000 acres (13%) of grasslands would be conserved under the No Action Alternative, compared to 54,000 acres (22%) under the Preferred Alternative. Compared to the Preferred Alternative, there is less conservation of grasslands in all subareas with conservation, except for the Mojave and Silurian Valley subarea and the Imperial Borrego Valley subarea, which has the same conservation under both alternatives.

Riparian

Overall, approximately 494,000 acres (50%) of riparian communities would be conserved under the No Action Alternative, compared to 715,000 acres (72%) under the Preferred Alternative. The most substantial difference between the alternatives is much less conservation under the No Action Alternative in the Imperial Borrego Valley subarea. All other subareas also have less conservation under the No Action Alternative.

In addition to conservation, impacts to riparian communities under the Preferred Alternative would be avoided under both alternatives since application of the CMAs would require that riparian communities be avoided to the maximum extent feasible in DFAs. In addition, setbacks from riparian communities would be required that range from 200 feet for Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert

wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub to 0.25 mile for Southwestern North American riparian evergreen and deciduous woodland and Southwestern North American riparian/wash scrub. These CMAs would not be applicable under the No Action Alternative.

Wetlands

Overall, approximately 310,000 acres (36%) of wetlands would be conserved under the No Action Alternative, compared to 433,000 acres (50%) under the Preferred Alternative. There is more conserved acreage of wetlands primarily in the Cadiz Valley and Chocolate Mountains subarea, but also all other subareas except the West Mojave and Eastern Slopes subarea.

In addition to conservation, impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep would not occur under the Preferred Alternative since application of the CMAs would require that these communities be avoided to the maximum extent feasible in DFAs, including a 0.25-mile setback. These CMAs would not be applicable under the No Action Alternative.

Impacts to Covered Species

Overall, there are greater impacts to suitable habitat for Covered Species under the No Action Alternative compared to the Preferred Alternative.

More suitable habitat for Covered Species would be impacted under the No Action Alternative compared to the Preferred Alternative for three of the four amphibian/reptile species—Agassiz's desert tortoise, Mojave fringe-toed lizard, and Tehachapi slender salamander. The No Action Alternative would impact more than twice the desert tortoise important areas acreage than the Preferred Alternative would. Six of the covered bird species have greater impacts to their suitable habitat under the No Action Alternative including some birds associated with riparian/wetland areas (i.e., California black rail, least Bell's vireo, western yellow-billed cuckoo, and Yuma clapper rail) and birds associated with other habitats (i.e., Bendire's thrasher and nesting golden eagle). Suitable habitat for all of the covered fish species except desert pupfish would have greater impacts under the Preferred Alternative, but the difference would be minimal. Greater impacts to suitable habitat for all mammal Covered Species would occur under the No Action Alternative as compared to the Preferred Alternative, except for Mohave ground squirrel; however, the No Action Alternative would result in greater impacts to Mohave ground squirrel important areas than the Preferred Alternative. Four of the ten covered plant species would have greater impacts under the No Action Alternative compared to the Preferred Alternative, including triple-ribbed milk vetch, Mojave tarplant, desert cymopterus, and Barstow woolly sunflower. However, CMA application would further avoid and minimize impacts to

suitable habitat for Covered Species under the Preferred Alternative as described in Section IV.7.3.2.1.1. No CMAs would be applied under the No Action Alternative.

Impacts to Non-Covered Species

Overall, there are greater impacts to suitable habitat for Non-Covered Species under the No Action Alternative compared to the Plan-wide Preferred Alternative.

More suitable habitat for Non-Covered Species has the potential to be impacted under the No Action Alternative compared to the Preferred Alternative for all of the invertebrates evaluated. In addition, application of CMA's and general siting design under the Preferred Alternative, would further protect spring-, cave-, and dune-restricted species by avoiding renewable development in these habitats. More suitable habitat for Non-Covered Species would be impacted under the No Action Alternative compared to the Preferred Alternative for the majority of amphibian/reptile species. More suitable habitat for Non-Covered Species would be impacted under the Preferred Alternative compared to the No Action Alternative for the majority of bird species. One of the fish Non-Covered species could potentially have greater impacts under the Preferred Alternative; however, implementation of CMAs would preclude development within fish habitat, thus further protecting this species under the Preferred Alternative. Greater potential impacts to suitable habitat for the majority of mammal Non-Covered Species would occur under the No Action Alternative as compared to the Preferred Alternative. The majority of plant Non-Covered Species would have greater impacts under the No Action Alternative compared to the Preferred Alternative.

Conservation of Covered Species

Overall, there is less conservation of Covered Species habitat under the No Action Alternative compared to the Preferred Alternative. In addition to conservation of suitable habitat for Covered Species, compensation CMAs would offset habitat loss for all Covered Species under the Preferred Alternative, but not the No Action Alternative. CMAs also require avoidance and minimization of Covered Species in DFAs and CMAs would be applied in the Reserve to benefit Covered Species under the Preferred Alternative, but not the No Action Alternative.

Impacts to the Desert Linkage Network

Overall, more acres of the desert linkage network would be impacted under the No Action Alternative compared to the Preferred Alternative. There are fewer impacts under the No Action Alternative in the Imperial Borrego Valley, Mojave and Silurian Valley, Owens River Valley, and Pinto Lucerne Valley and Eastern Slope subareas, but much greater impacts in the Cadiz Valley and Chocolate Mountains subarea and other subareas.

Under the No Action Alternative, following the BLM Solar PEIS decision, two desert linkages a minimum of 2-km wide were identified for protection: (1) across Interstate 10 centered on Wiley's Well Road to connect the Mule and McCoy mountains and (2) across Interstate 10 to connect the Chuckwalla and Palen mountains. Under the DRECP Preferred Alternative, these two identified linkages are maintain and improved; they are made wider and thus more likely to sustain wildlife and plant movement over a longer time. Furthermore, under the Preferred Alternative, but not under the No Action Alternative, to avoid and minimize impacts to the desert linkage network beyond what is presented in this section, the DRECP Preferred Alternative added two additional linkages across Interstate 10. Covered Activities will be sited and designed to maintain the function of wildlife connectivity in the following linkage and connectivity areas: (1) across Interstate 10 to connect the Chuckwalla Mountains to the Chuckwalla Valley east of Desert Center, and (2) the confluence of Milpitas Wash and Colorado River floodplain. Additionally, the Riparian and Wetland Natural Communities and Covered Species CMAs will contribute to maintaining and promoting habitat connectivity and wildlife movement.

Conservation of the Desert Linkage Network

Overall, there is greater conservation of the desert linkage network under the Preferred Alternative compared to the No Action Alternative. Conservation is greater in each subarea of the Plan Area. In addition to conservation of the desert linkage network, CMAs provide for the avoidance and minimization of certain linkages in the DFAs under the Preferred Alternative, but not the No Action Alternative.

Operational Impacts

The operation of renewable energy would result in the degradation of vegetation through the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants as well as the disturbance of wildlife due to noise, predator avoidance behavior, and light and glare. The Preferred Alternative and the No Action Alternative would result in similar levels of terrestrial operational impacts. Additionally, the distribution of vegetation degradation and wildlife disturbance as a result of operational impacts would be distributed differently under the No Action Alternative and Preferred Alternative. The degradation of vegetation during operations in the No Action Alternative would be more prevalent in the Cadiz Valley and Chocolate Mountains subarea than in the Preferred Alternative, while under the Preferred Alternative the West Mojave and Eastern Slopes and Mojave and Silurian Valley subareas would experience greater amounts of vegetation degradation from operational impacts. The No Action Alternative would also result in a larger magnitude of wildlife disturbance from operational impacts in the Cadiz Valley and Chocolate Mountains subarea, whereas

the Preferred Alternative would cause more wildlife disturbance in the Imperial Borrego Valley subarea from operational impacts.

However, in the No Action Alternative renewable energy development would not be confined to DFAs and is assumed to follow past and current development patterns while under the Preferred Alternative renewable energy development would generally be confined to DFAs that are designed to minimize impacts to biological resources. In addition, the No Action Alternative would not implement the CMAs described in Section IV.7.3.2.1 that would be required under the Preferred Alternative to avoiding, minimizing, and compensating for operational impacts.

For wind, implementation of the Preferred Alternative would result in lower rates of collision and fewer terrestrial impacts than the No Action Alternative because the anticipated technology mix includes less wind and therefore fewer turbines and less ground disturbance. Compared to the No Action Alternative, the Preferred Alternative collisions would be less aggregated in West Mojave and Eastern Slopes subarea. Overall, the Preferred Alternative would result in a median of approximately 10,100 collisions per year for birds and approximately 46,600 collisions for bats across the Plan Area, compared to approximately 13,600 collisions per year for birds and approximately 63,000 collisions per year for bats in the No Action Alternative.

Annual collisions rates in the West Mojave and Eastern Slopes, and the Imperial Borrego Valley subareas would be considerable lower in the Preferred Alternative (about 7,236 and 1,895 less respectively). Conversely, expected collision rates in other subareas would be higher. In particular, in the Pinto Lucerne Valley and Eastern Slopes, and in the Cadiz Valley and Chocolate Mountains subareas would be greater than the No Action alternative (about 3,543 and 2,091 more respectively). The shift in distribution of collisions would result in more impacts to the following species: California black rail, Gila woodpecker, greater sandhill crane, western yellow-billed cuckoo, and Yuma clapper rail

When compared to the No Action Alternative, the anticipated quantity of solar across the plan in the Preferred Alternative would be greater and therefore likely impacts to covered, both terrestrial and aerial, species would be proportionally greater. Impacts in the West Mojave, where opportunities for wind development would be reduced, would lead to increased impacts from solar generation. Impacts in Imperial Borrego Valley subarea would be similar between alternatives. In contrast, affects in the Eastern Mojave, north of the I-15 corridor, bordering Nevada and in the Providence and Bullion Mountain subarea would be considerably lower those anticipated from the No Action Alternative.

Implementation of applicable CMAs discussed in Section IV.7.3.2.1 would systematically minimize adverse effects of generation projects. Whereas the No Action alternative would rely on project by project mitigation to minimize impacts.

IV.7.3.2.7.2 Preferred Alternative Compared with No Action Alternative for the BLM Land Use Plan Amendment

The Preferred Alternative would concentrate renewable energy development into approximately 367,000 acres of DFAs on BLM-administered lands as compared to the over 2.8 million acres of BLM-administered lands considered open to renewable energy development under the No Action Alternative. Under the Preferred Alternative, the BLM LUPA would designate approximately 4.9 million acres of BLM LUPA conservation designations on BLM-administered lands, including 3.5 million acres of NLCS, 1.4 million acres of ACEC, and approximately 18,000 acres of wildlife allocation, as compared to approximately 2.4 million acres in existing ACECs on BLM-administered lands under the No Action Alternative. Mitigation that would contribute additional conservation acreage under the No Action Alternative would be project-by-project and would not be part of a desert-wide conservation strategy. Avoidance, minimization, and compensation for the impacts of renewable energy and transmission development projects under the Preferred Alternative would be through the established DRECP CMAs, whereas avoidance, minimization, and compensation for renewable energy and transmission development under the No Action Alternative would be project-by-project. The following provides a comparative analysis for specific biological resources.

Impacts to Natural Communities

A summary of the differences between effects under the No Action Alternative and the Preferred Alternative is provided below.

California forest and woodlands

Overall, approximately 200 acres of California forest and woodlands would be impacted under the No Action Alternative, compared to approximately 40 acres under the Preferred Alternative under the BLM LUPA. Compared to the Preferred Alternative, there are fewer impacts from transmission in the Pinto Lucerne Valley and Eastern Slopes, but greater impacts from solar, wind, and transmission in the West Mojave and Eastern Slopes subarea.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 80 acres of chaparral and coastal scrubs would be impacted under the No Action Alternative, compared to approximately 300 acres under the Preferred Alternative under the BLM LUPA. Compared to the Preferred Alternative, there are fewer impacts in both the Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas.

Desert conifer woodlands

Overall, approximately 200 acres of desert conifer woodlands would be impacted under the No Action Alternative, compared to approximately 400 acres under the Preferred Alternative under the BLM LUPA. Compared to the Preferred Alternative, there are greater impacts in the Kingston and Funeral Mountains subarea, but fewer impacts in the Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas.

Desert outcrop and badlands

Overall, approximately 9,000 acres of desert outcrop and badlands would be impacted under the No Action Alternative, compared to 8,000 acres under the Preferred Alternative under the BLM LUPA. Compared to the Preferred Alternative, the largest difference would be in greater impacts in the Imperial Borrego Valley subarea.

Desert scrubs

Overall, approximately 59,000 acres of desert scrubs would be impacted under the No Action Alternative, compared to 46,000 acres under the Preferred Alternative under the BLM LUPA. Compared to the Preferred Alternative, there are greater impacts in the Cadiz Valley and Chocolate Mountain, Kingston and Funeral Mountains, Providence and Bullion Mountains, and West Mojave and Eastern Slopes subareas. The remaining subareas have the same or greater impacts under the Preferred Alternative.

Dunes

Unlike the Preferred Alternative, under which impacts to dune communities would be minimized since application of the CMAs would require that dune communities be avoided to the maximum extent feasible in DFAs, impacts to dune communities under the No Action Alternative for the BLM LUPA would total approximately 1,000 acres.

Grasslands

Overall, approximately 200 acres of grasslands would be impacted under the No Action Alternative, compared to 500 acres under the Preferred Alternative for the BLM LUPA. Most of this difference is from fewer impacts to grasslands in the West Mojave and Eastern Slopes subarea under the No Action Alternative compared to the Preferred Alternative.

Riparian

Unlike the Preferred Alternative, under which impacts to riparian communities would be avoided since application of the CMAs would require that riparian communities be

avoided to the maximum extent feasible in DFAs, impacts to riparian communities under the No Action Alternative for the BLM LUPA total 6,000 acres.

Wetlands

Overall, approximately 3,000 acres of wetlands would be impacted under the No Action Alternative, compared to 4,000 acres under the Preferred Alternative. Unlike the Preferred Alternative, under which impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep would not occur since application of the CMAs would require that these communities be avoided to the maximum extent feasible in DFAs, including a 0.25-mile setback, impacts to these communities would occur under the No Action Alternative.

Compared to the Preferred Alternative, there are more impacts in the Kingston and Funeral Mountains subarea, but the same or fewer impacts in all other subareas.

Conservation of Natural Communities

A summary of the differences between conservation under the No Action Alternative and the Preferred Alternative is provided below.

California forest and woodlands

Overall, approximately 21,000 acres (47%) of California forest and woodlands would be conserved under the No Action Alternative, compared to 38,000 acres (86%) under the Preferred Alternative under the BLM LUPA. The greatest difference between the two Alternatives would be in the West Mojave and Eastern Slopes subarea.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 6,000 acres (33%) of chaparral and coastal scrubs would be conserved under the No Action Alternative, compared to 11,000 acres (62%) under the Preferred Alternative under the BLM LUPA. Compared to the Preferred Alternative, there is no conservation in the Panamint Death Valley, less conservation in the Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas, and more conservation in the Mojave and Silurian Valley subarea.

Desert conifer woodlands

Overall, approximately 35,000 acres (70%) of desert conifer woodlands would be conserved under the No Action Alternative, compared to 41,000 acres (83%) under the Preferred Alternative under the BLM LUPA. Compared to the Preferred Alternative, there is less conservation in all subareas.

Desert outcrop and badlands

Overall, approximately 802,000 acres (67%) of desert outcrop and badlands would be conserved under the No Action Alternative, compared to 1,017,000 acres (84%) under the Preferred Alternative under the BLM LUPA. Compared to the Preferred Alternative, there is less conservation of this general community in all subareas with the largest difference in the Cadiz Valley and Chocolate Mountains subarea.

Desert scrubs

Overall, approximately 3,970,000 acres (57%) of desert scrubs would be conserved under the No Action Alternative, compared to 5,835,000 acres (83%) under the Preferred Alternative under the BLM LUPA. Compared to the Preferred Alternative, there is less conservation of this general community in all subareas with the largest difference in the Cadiz Valley and Chocolate Mountains and Providence and Bullion Mountains subareas.

Dunes

Overall, approximately 66,000 acres (53%) of dunes would be conserved under the No Action Alternative, compared to 89,000 acres (70%) under the Preferred Alternative under the BLM LUPA. Compared to the Preferred Alternative, there is less conservation of this general community in all subareas, except the Pinto Lucerne Valley and Eastern Slopes, which has about 80 acres of conservation of dunes under both alternatives. The largest difference between the two alternatives would be in the Cadiz Valley and Chocolate Mountains subarea.

In addition to conservation, impacts to dune communities would be minimized under the Preferred Alternative, but not the No Action Alternative, since application of the CMAs would require that dune communities be avoided to the maximum extent feasible in DFAs. In addition, CMA application under the Preferred Alternative would prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

Grasslands

Overall, approximately 14,000 acres (49%) of grasslands would be conserved under the No Action Alternative, compared to 23,000 acres (8.%) under the Preferred Alternative under the BLM LUPA. Compared to the Preferred Alternative, there is less conservation of grasslands in all subareas with conservation, except for the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas, which have the same minimal conservation under both alternatives. The biggest difference is in much greater

conservation under the Preferred Alternative than the No Action Alternative in the Pinto Lucerne Valley and Eastern Slopes subarea.

Riparian

Overall, approximately 311,000 acres (48%) of riparian communities would be conserved under the No Action Alternative, compared to 515,000 acres (80%) under the Preferred Alternative under the BLM LUPA. The most substantial difference between the alternatives is much less conservation under the No Action Alternative in the Imperial Borrego Valley and Cadiz Valley and Chocolate Mountains subareas. All other subareas also have greater conservation under the Preferred Alternative.

In addition to conservation, impacts to riparian communities under the Preferred Alternative would be avoided under both alternatives since application of the CMAs would require that riparian communities be avoided to the maximum extent feasible in DFAs. In addition, setbacks from riparian communities would be required that range from 200 feet for Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub to 0.25 mile for Southwestern North American riparian evergreen and deciduous woodland and Southwestern North American riparian/wash scrub. These CMAs would not be applicable under the No Action Alternative.

Wetlands

Overall, approximately 98,000 acres (34%) of wetlands would be conserved under the No Action Alternative, compared to 184,000 acres (62%) under the Preferred Alternative under the BLM LUPA. There is more conserved acreage of wetlands primarily in the Cadiz Valley and Chocolate Mountains subarea, but also in all other subareas.

In addition to conservation, impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep would not occur under the Preferred Alternative since application of the CMAs would require that these communities be avoided to the maximum extent feasible in DFAs, including a 0.25-mile setback. These CMAs would not be applicable under the No Action Alternative.

Impacts to Covered Species

Overall, there are greater impacts to suitable habitat for Covered Species under the No Action Alternative compared to the Preferred Alternative under the BLM LUPA. More suitable habitat for Covered Species would be impacted under the No Action Alternative compared to the Preferred Alternative for three of the four amphibian/reptile species—Agassiz's desert tortoise, Mojave fringe-toed lizard, and Tehachapi slender salamander.

Six of the covered bird species have greater impacts to their suitable habitat under the No Action Alternative including some birds associated with riparian/wetland areas (i.e., least Bell's vireo, western yellow-billed cuckoo, and Yuma clapper rail) and birds associated with other habitats (i.e., Bendire's thrasher, Gila woodpecker, golden eagle). Suitable habitat for the covered fish species would be very similar under either alternative. Mohave ground squirrel is the only Covered mammal species with greater impacts to suitable habitat under the Preferred Alternative. Two of the ten covered plant species would have greater impacts under the No Action Alternative compared to the Preferred Alternative, including desert cymopterus and Barstow woolly sunflower. However, CMA application would further avoid and minimize impacts to suitable habitat for Covered Species under the Preferred Alternative as described in Section IV.7.3.2.1.1. No CMAs would be applied under the No Action Alternative.

Impacts to Non-Covered Species

Overall, there are greater impacts to suitable habitat for Non-Covered Species under the No Action Alternative compared to the Preferred Alternative for the BLM LUPA.

More suitable habitat for Non-Covered Species has the potential to be impacted under the No Action Alternative compared to the Preferred Alternative for the spring- and cave-restricted invertebrates evaluated. The analysis indicates that there could be more impacts to dune habitats under the Preferred Alternative, however, application of CMA's and general siting design under the Preferred Alternative would further protect spring-, cave-, and dune-restricted species by avoiding renewable development in these habitats. More suitable habitat for Non-Covered Species has the potential to be impacted under the No Action Alternative compared to the Preferred Alternative for seven of the eight amphibian/reptile species; however, application of the riparian/wetland CMAs would further protect any impacts to suitable habitat for the arroyo toad. More suitable habitat for Non-Covered Species has the potential to be impacted under the No Action Alternative compared to the Preferred Alternative for all of the bird species evaluated. More suitable habitat for Non-Covered Species has the potential to be impacted under the No Action Alternative compared to the Preferred Alternative for all of the fish species evaluated. In addition, implementation of CMAs would preclude development within fish habitat, thus further protecting these species under the Preferred Alternative. Greater impacts to suitable habitat for mammal Non-Covered Species could potentially occur under the No Action Alternative as compared to the Preferred Alternative. The majority of the plant Non-Covered Species would have greater impacts under the No Action Alternative compared to the Preferred Alternative.

Conservation of Covered Species

Overall, there is less conservation of Covered Species habitat under the No Action Alternative compared to the Preferred Alternative under the BLM LUPA. In addition, CMA application would further avoid and minimize impacts to Covered Species under the Preferred Alternative, but not the No Action Alternative, as described in Section IV.7.3.2.2.

In addition to conservation of suitable habitat for Covered Species, compensation CMAs would offset habitat loss for all Covered Species under the Preferred Alternative, but not the No Action Alternative. CMAs also require avoidance and minimization of Covered Species in DFAs and CMAs would be applied in the Reserve to benefit Covered Species under the Preferred Alternative, but not the No Action Alternative.

Impacts to the Desert Linkage Network

Overall, more acres of the desert linkage network would be impacted under the No Action Alternative compared to the Preferred Alternative under the BLM LUPA. There are fewer impacts under the No Action Alternative in the Imperial Borrego Valley, Owens River Valley, and Pinto Lucerne Valley and Eastern Slope subareas, but over 4,000 acres greater impacts in the Cadiz Valley and Chocolate Mountains and Providence and Bullion Mountains subareas.

Furthermore, under the Preferred Alternative, but not under the No Action Alternative, to avoid and minimize impacts to the desert linkage network beyond what is presented in Table IV.7-68, Covered Activities will be sited and designed to maintain the function of wildlife connectivity in the following linkage and connectivity areas: (1) across Interstate 10 centered on Wiley's Well Road to connect the Mule and McCoy mountains, (2) across Interstate 10 to connect the Chuckwalla and Palen mountains, (3) across Interstate 10 to connect the Chuckwalla Mountains to the Chuckwalla Valley east of Desert Center, and (4) the confluence of Milpitas Wash and Colorado River floodplain. In addition, the Riparian and Wetland Natural Communities and Covered Species CMAs will contribute to maintaining and promoting habitat connectivity and wildlife movement.

Conservation of the Desert Linkage Network

Overall, there is greater conservation of the desert linkage network under the Preferred Alternative compared to the No Action Alternative under the BLM LUPA. Conservation is greater in each subarea of the Plan Area. In addition to conservation of the desert linkage network, CMAs provide for the avoidance and minimization of certain linkages in the DFAs under the Preferred Alternative, but not the No Action Alternative.

Operational Impacts

The operation of renewable energy would result in the degradation of vegetation through the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants as well as the disturbance of wildlife due to noise, predator avoidance behavior, and light and glare. The No Action Alternative would result in greater terrestrial operational impacts on BLM Land when compared with the Preferred Alternative. Additionally, the distribution of vegetation degradation and wildlife disturbance as a result of operational impacts would be distributed differently under the No Action Alternative and Preferred Alternative. The degradation of vegetation during operations in the No Action Alternative would be less distributed in the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley and Pinto Lucerne Valley and Eastern Slopes subareas than in the Preferred Alternative, which would have less vegetation degradation distributed in the West Mojave and Eastern Slopes subarea from operational impacts. The No Action Alternative and Preferred Alternative would a similar distribution of wildlife disturbance impacts, with the Cadiz Valley experience the largest distribution of these adverse operational effects on BLM Land.

However, in the No Action Alternative renewable energy development would not be confined to DFAs and is assumed to follow past and current development patterns while under the Preferred Alternative renewable energy development would generally be confined to DFAs that are designed to minimize impacts to biological resources. In addition, the No Action Alternative would not would implement the CMAs described in Section IV.7.3.2.1 that would be required under the Preferred Alternative to avoiding, minimizing, and compensating for operational impacts.

The LUPA Preferred Alternative would reduce terrestrial impacts in the Kingston and Funeral Mountains and the Providence and Bullion Mountains subareas, when compared to the No Action Alternative. In these subareas, terrestrial impacts from solar are reduced by 10,882 acres and 8,722 acres respectively, with no impacts from wind anticipated in either alternative. This implies that operational impacts to covered biological resources in these subareas would also be substantially reduced by implementation of the LUPA Preferred Alternative.

To enable this major reduction in impacts to these subareas in the eastern Mojave, impacts in Imperial Borrego Valley, Pinto Lucerne Valley and Eastern Slopes, and West Mojave and Eastern Slopes subareas would increase. However, addition of substantial quantities of geothermal to the overall profile would moderate the impacts of solar but also increase impacts in the Imperial Borrego Valley subarea.

The distribution of impacts in the Cadiz, and Chocolate Mountains would be complex. The Preferred Alternative assumes greater quantities of development would occur in private land, and also that wind development would occur within BLM managed areas. Therefore,

while the No Action alternative anticipates the 27,400 acres of terrestrial impacts from solar development, the Preferred Alternative assumes only 18,328 acres of impacts from solar; the remaining impacts would be from wind. Operational impacts from wind, i.e., collisions, would be greater in the Preferred Alternative. However, implementation of applicable CMAs discussed in IV.7.3.2.1 would systematically minimize adverse effects of generation projects. Whereas the No Action alternative would rely on project by project mitigation to minimize impacts.

IV.7.3.2.7.3 Preferred Alternative Compared with No Action Alternative for NCCP

The impacts of the NCCP for the Preferred Alternative are the same as those defined in Section IV.7.3.2.1 for the Plan-wide analysis. As a result, the comparison of the Preferred Alternative with the No Action Alternative for the NCCP is the same as described above for Plan-wide DRECP.

IV.7.3.2.7.4 Preferred Alternative Compared with No Action Alternative for the GCP

The Preferred Alternative would allow renewable energy development on approximately 1.6 million acres of DFAs on nonfederal lands as compared to the over 3.4 million acres of nonfederal lands considered open to renewable energy development under the No Action Alternative. Under the Preferred Alternative, the Reserve Design Lands would include approximately 2.7 million acres on nonfederal lands, including 434,000 acres within existing conservation areas, 1.2 million acres within BLM LUPA conservation designations, and 1.1 million acres within Conservation Planning Areas. This compares with the No Action Alternative on nonfederal lands that includes 434,000 acres within existing conservation areas and 562,000 acres within existing BLM conservation designations. Mitigation that would contribute additional conservation acreage under the No Action Alternative would be project-by-project and would not be part of a desert-wide conservation strategy. Avoidance, minimization, and compensation for the impacts of renewable energy and transmission development projects under the Preferred Alternative would be through the established DRECP CMAs, whereas avoidance, minimization, and compensation for renewable energy and transmission development under the No Action Alternative would be project-by-project. The following provides a comparative analysis for specific biological resources.

Impacts to Natural Communities

A summary of the differences between effects under the No Action Alternative and the Preferred Alternative is provided below.

California forest and woodlands

Overall, approximately 800 acres of California forest and woodlands would be impacted under the No Action Alternative, compared to 80 acres under the Preferred Alternative under the GCP. Compared to the Preferred Alternative, there are slightly greater impacts in the Pinto Lucerne Valley and Eastern Slopes subarea and much greater impacts from solar, wind, and transmission in the West Mojave and Eastern Slopes subarea.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 1,000 acres of chaparral and coastal scrubs would be impacted under the No Action Alternative and the Preferred Alternative under the GCP. Compared to the Preferred Alternative, there are fewer impacts primarily in the Pinto Lucerne Valley and Eastern Slopes subarea.

Desert conifer woodlands

Overall, approximately 1,000 acres of desert conifer woodlands would be impacted under the No Action Alternative, compared to 900 acres under the Preferred Alternative under the GCP. Compared to the Preferred Alternative, there are greater impacts in the Kingston and Funeral Mountains and West Mojave and Eastern Slopes subareas, but fewer impacts in the Pinto Lucerne Valley and Eastern Slopes subarea.

Desert outcrop and badlands

Overall, approximately 2,000 acres of desert outcrop and badlands would be impacted under the No Action Alternative, compared to approximately 1,000 acres under the Preferred Alternative under the GCP. Compared to the Preferred Alternative, there are slightly fewer impacts in the West Mojave and Eastern Slopes subarea, but the same or more impacts in all remaining subareas, especially the Cadiz Valley and Chocolate Mountains subarea.

Desert scrubs

Overall, approximately 36,000 acres of desert scrubs would be impacted under the No Action Alternative, compared to 45,000 acres under the Preferred Alternative under the GCP. Compared to the Preferred Alternative, there are greater impacts in the Cadiz Valley and Chocolate Mountain, Imperial Borrego Valley, Kingston and Funeral Mountains, and Providence and Bullion Mountains subareas. The remaining subareas have the same or greater impacts under the Preferred Alternative with the greatest difference in the West Mojave and Eastern Slopes subarea.

Dunes

Unlike the Preferred Alternative, under which impacts to dune communities would be minimized since application of the CMAs would require that dune communities be avoided to the maximum extent feasible in DFAs, impacts to dune communities under the No Action Alternative for the GCP would total approximately 700 acres.

Grasslands

Overall, approximately 3,000 acres of grasslands would be impacted under the No Action Alternative, compared to 6,000 acres under the Preferred Alternative for the GCP. Compared to the Preferred Alternative, there are greater impacts in the Imperial Borrego Valley subarea, but the same or fewer impacts in all other subareas, with the greatest difference in the West Mojave and Eastern Slopes subarea.

Riparian

Unlike the Preferred Alternative, under which impacts to riparian communities would be avoided since application of the CMAs would require that riparian communities be avoided to the maximum extent feasible in DFAs, impacts to riparian communities under the No Action Alternative for the GCP total approximately 3,000 acres.

Wetlands

Overall, approximately 4,000 acres of wetlands would be impacted under the No Action Alternative, compared to 5,000 acres under the Preferred Alternative. Unlike the Preferred Alternative, under which impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep would not occur since application of the CMAs would require that these communities be avoided to the maximum extent feasible in DFAs, including a 0.25-mile setback, impacts to these communities would occur under the No Action Alternative.

Compared to the Preferred Alternative, there are more impacts in the Cadiz Valley and Chocolate Mountains, Kingston and Funeral Mountains, and West Mojave and Eastern Slopes subareas, but the same or fewer impacts in all other subareas.

Conservation of Natural Communities

A summary of the differences between conservation under the No Action Alternative and the Preferred Alternative is provided below. See Section IV.7.3.2.4.2 for a more detailed analysis of the conservation of natural communities under the Preferred Alternative for the GCP.

California forest and woodlands

Overall, approximately 8,000 acres (8%) of California forest and woodlands would be conserved under the No Action Alternative, compared to 24,000 acres (23%) under the Preferred Alternative under the GCP. The greatest difference between the two Alternatives would be in the West Mojave and Eastern Slopes subarea.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 2,000 acres (3%) of chaparral and coastal scrubs would be conserved under the No Action Alternative, compared to 11,000 acres (13%) under the Preferred Alternative under the GCP. The largest different between the Alternatives would be less conservation in the Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas under the No Action Alternative compared to the Preferred Alternative.

Desert conifer woodlands

Overall, approximately 9,000 acres (8%) of desert conifer woodlands would be conserved under the No Action Alternative, compared to 19,000 acres (18%) under the Preferred Alternative under the GCP. Compared to the Preferred Alternative, there is less conservation in all subareas, except the Imperial Borrego Valley subarea, which would have approximately 200 acres of conservation of desert conifer woodlands under both alternatives. The biggest difference would be in the West Mojave and Eastern Slopes subarea.

Desert outcrop and badlands

Overall, approximately 109,000 acres (50%) of desert outcrop and badlands would be conserved under the No Action Alternative, compared to 110,000 acres (50%) under the Preferred Alternative under the GCP. The largest difference between the Alternatives is in the Owens River Valley subarea, where there is approximately 6,000 acres of conserved desert outcrop and badlands under the Preferred Alternative and a negligible acreage conserved under the No Action Alternative.

Desert scrubs

Overall, approximately 685,000 acres (23%) of desert scrubs would be conserved under the No Action Alternative, compared to 833,000 acres (28%) under the Preferred Alternative under the GCP. Compared to the Preferred Alternative, there is less conservation of this general community in all subareas except the Mojave and Silurian Valley and Piute Valley and Sacramento Mountains subareas with the largest difference in the West Mojave and Eastern Slopes subarea.

Dunes

Overall, approximately 2,000 acres (7%) of dunes would be conserved under the No Action Alternative, compared to 7,000 acres (21%) under the Preferred Alternative under the GCP. Compared to the Preferred Alternative, there is less conservation of this general community in all subareas except the West Mojave and Eastern Slopes subarea.

In addition to conservation, impacts to dune communities would be minimized under the Preferred Alternative, but not the No Action Alternative, since application of the CMAs would require that dune communities be avoided to the maximum extent feasible in DFAs. In addition, CMA application under the Preferred Alternative would prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

Grasslands

Overall, approximately 12,000 acres (6%) of grasslands would be conserved under the No Action Alternative, compared to 24,000 acres (12%) under the Preferred Alternative under the GCP. Compared to the Preferred Alternative, there is less or about the same conservation of grasslands in all subareas with conservation, except for the Mojave and Silurian Valley subarea. The greatest difference is in the West Mojave and Eastern Slopes with approximately 11,000 acres more grassland conserved under the Preferred Alternative.

Riparian

Overall, approximately 58,000 acres (29%) of riparian communities would be conserved under the No Action Alternative, compared to 74,000 acres (37%) under the Preferred Alternative under the GCP. The most substantial difference between the alternatives is less conservation under the No Action Alternative in the Imperial Borrego Valley, and Owens River Valley, West Mojave and Eastern Slopes. The Cadiz Valley and Chocolate Mountains subarea is the only subarea that has considerably greater conservation under the No Action Alternative.

In addition to conservation, impacts to riparian communities under the Preferred Alternative would be avoided under both alternatives since application of the CMAs would require that riparian communities be avoided to the maximum extent feasible in DFAs. In addition, setbacks from riparian communities would be required that range from 200 feet for Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub to 0.25 mile for Southwestern North American riparian evergreen and deciduous woodland and Southwestern North American riparian/wash scrub. These CMAs would not be applicable under the No Action Alternative.

Wetlands

Overall, approximately 45,000 acres (14%) of wetlands would be conserved under the No Action Alternative, compared to 72,000 acres (22%) under the Preferred Alternative under the GCP. With the exception of the Mojave and Silurian Valley and West Mojave and Eastern Slopes subareas, there is more conserved acreage of wetlands in all of the subareas, especially in the Owens River Valley subarea.

In addition to conservation, impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep would not occur under the Preferred Alternative since application of the CMAs would require that these communities be avoided to the maximum extent feasible in DFAs, including a 0.25-mile setback. These CMAs would not be applicable under the No Action Alternative.

Impacts to Covered Species

Overall, there are greater impacts to suitable habitat for Covered Species under the No Action Alternative compared to the Preferred Alternative under the GCP.

More suitable habitat for Covered Species would be impacted under the No Action Alternative compared to the Preferred Alternative for three of the four amphibian/reptile species—flat-tailed horned lizard, Mojave fringe-toed lizard, and Tehachapi slender salamander. Six of the covered bird species have greater impacts to their suitable habitat under the No Action Alternative including some birds associated with riparian/wetland areas (i.e., California black rail, least Bell's vireo, western yellow-billed cuckoo, and Yuma clapper rail) and birds associated with other habitats (i.e., Gila woodpecker, golden eagle). Suitable habitat for all of the covered fish species except desert pupfish, which would have greater impacts under the No Action Alternative, would not be impacted under either alternative. Mohave ground squirrel, pallid bat, and Townsend's big-eared bat are the only covered mammal species with greater impacts to suitable habitat under the Preferred Alternative. Four of the ten covered plant species would have greater impacts under the No Action Alternative compared to the Preferred Alternative, including triple-ribbed milk vetch, Mojave tarplant, desert cymopterus, and Barstow woolly sunflower. However, CMA application would further avoid and minimize impacts to suitable habitat for Covered Species under the Preferred Alternative as described in Section IV.7.3.2.4. No CMAs would be applied under the No Action Alternative.

Impacts to Non-Covered Species

More suitable habitat for Non-Covered Species has the potential to be impacted under the No Action Alternative compared to the Preferred Alternative for the GCP for the dune-restricted invertebrates. Application of CMA's and general siting design under the

Preferred Alternative would further protect these species by avoiding renewable development in these habitats. More suitable habitat for Non-Covered Species has the potential to be impacted under the No Action Alternative compared to the Preferred Alternative for all eight amphibian/reptile species. More suitable habitat for Non-Covered Species has the potential to be impacted under the Preferred Alternative for all of the bird species evaluated. Greater impacts to suitable habitat for mammal Non-Covered Species could potentially occur under the No Action Alternative as compared to the Preferred Alternative.

Conservation of Covered Species

Overall, there is less conservation of Covered Species habitat under the No Action Alternative compared to the Preferred Alternative under the GCP. There is also less suitable habitat for each individual Covered Species under the No Action Alternative compared to the Preferred Alternative. In addition, CMA application would further avoid and minimize impacts to Covered Species under the Preferred Alternative, but not the No Action Alternative, as described in Section IV.7.3.2.4.

In addition to conservation of suitable habitat for Covered Species, compensation CMAs would offset habitat loss for all Covered Species under the Preferred Alternative, but not the No Action Alternative. CMAs also require avoidance and minimization of Covered Species in DFAs and CMAs would be applied in the Reserve to benefit Covered Species under the Preferred Alternative, but not the No Action Alternative.

Impacts to the Desert Linkage Network

Overall, more acres of the desert linkage network would be impacted under the No Action Alternative compared to the Preferred Alternative under the GCP. There are fewer impacts under the No Action Alternative in the Mojave and Silurian Valley, and Pinto Lucerne Valley and Eastern Slope subareas, but much greater impacts in the Cadiz Valley and Chocolate Mountains subarea.

Furthermore, under the Preferred Alternative, but not under the No Action Alternative, to avoid and minimize impacts to the desert linkage network beyond what is presented in Table IV.7-88, Covered Activities will be sited and designed to maintain the function of wildlife connectivity in the following linkage and connectivity areas: (1) across Interstate 10 centered on Wiley's Well Road to connect the Mule and McCoy mountains, (2) across Interstate 10 to connect the Chuckwalla and Palen mountains, (3) across Interstate 10 to connect the Chuckwalla Mountains to the Chuckwalla Valley east of Desert Center, and (4) the confluence of Milpitas Wash and Colorado River floodplain. In addition, the Riparian and Wetland Natural Communities and Covered Species CMAs will contribute to maintaining and promoting habitat connectivity and wildlife movement.

Conservation of the Desert Linkage Network

Overall, there is greater conservation of the desert linkage network under the Preferred Alternative compared to the No Action Alternative under the GCP. Conservation is greater in all of the subareas of the Plan Area except the Kingston and Funeral Mountains, Mojave and Silurian Valley, and Piute Valley and Sacramento Mountains subareas. In addition to conservation of the desert linkage network, CMAs provide for the avoidance and minimization of certain linkages in the DFAs under the Preferred Alternative, but not the No Action Alternative.

Operational Impacts

The operation of renewable energy facilities would result in the degradation of vegetation through the creation of dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants as well as the disturbance of wildlife due to noise, predator avoidance behavior, and light and glare. For the GCP, the differences in size and distribution of impacts found in the Preferred Alternative and the No Action alternative would reflect the distribution of impacts identified in the Plan-wide analysis. The notable exception would be in the Cadiz and Chocolate Mountains subarea, in which a high proportion of DFAs are within BLM jurisdiction.

However, in the No Action Alternative renewable energy development would not be confined to DFAs and is assumed to follow past and current development patterns while under the Preferred Alternative, renewable energy development would generally be confined to DFAs that are designed to minimize impacts to biological resources. In addition, the No Action Alternative would not would implement the CMAs described in Section IV.7.3.2.1 that would be required under the Preferred Alternative to avoiding, minimizing, and compensating for operational impacts.

Implementation of the Preferred Alternative would result in lower rates of collisions and fewer terrestrial impacts associated with wind energy development than the No Action Alternative because the anticipated technology mix includes less wind and therefore fewer turbines and less ground disturbance. Compared to the No Action Alternative, the Preferred Alternative impacts from wind would be less concentrated; they would be spread across the Cadiz and Chocolate Mountains, Pinto Lucerne Valley, and West Mojave and Eastern Slopes subareas rather than concentrated in the latter.

As stated, impacts in the West Mojave and Eastern Slopes, and the Imperial Borrego Valley subareas would be considerably lower in the Preferred Alternative. Conversely, anticipated impacts in other subareas would be higher. In particular, in the Pinto Lucerne Valley and Eastern Slopes, and in the Cadiz Valley and Chocolate Mountains subareas impacts would

be greater than the No Action alternative. The shift in distribution of impacts would result in more impacts to the following species: California black rail, Gila woodpecker, greater sandhill crane, western yellow-billed cuckoo, and Yuma clapper rail.

When compared to the No Action Alternative, the anticipated quantity of solar across the plan in the Preferred Alternative would be greater and therefore likely impacts to, both terrestrial and aerial Covered Species would be proportionally greater. Impacts in the West Mojave, where opportunities for wind development would be reduced, would lead to increased impacts from solar generation. In contrast, effects in the Eastern Mojave, north of the I-15 corridor, bordering Nevada and in the Providence and Bullion Mountain subarea would be considerably lower those anticipated from the No Action Alternative. Impacts in the Imperial Borrego Valley subarea would be similar between alternatives.

Implementation of applicable CMAs discussed in IV.7.3.2.1 would systematically minimize adverse effects of generation projects. However, the No Action Alternative would rely on project-by-project mitigation to minimize impacts.

IV.7.3.3 Alternative 1

The impact analysis for biological resources under Alternative 1 is provided below.

IV.7.3.3.1 Plan-Wide Impacts of Implementing the DRECP: Alternative 1

This section provides the Plan-wide assessment of impacts of implementing the DRECP for Alternative 1. This Plan-wide assessment addresses the impacts and mitigation measures from renewable energy and transmission development and impacts of the reserve design.

IV.7.3.3.1.1 Plan-Wide Impacts and Mitigation Measures from Renewable Energy and Transmission Development

Impact Assessment

The following provides the Plan-wide assessment of impacts and mitigation measures for renewable energy and transmission development for Alternative 1. Impacts are organized by biological resources impact statement (i.e., BR-1 through BR-9). Alternative 1 includes DFAs (1,070,000 acres) and transmission corridors where approximately 182,000 acres of ground disturbance related impacts and operational impacts would occur. As described in Section IV.7.1.1, the reported impact acreage (e.g., acres of impact to natural communities or Covered Species habitat) is based on the overlap of the DFAs and the resource (e.g., mapped natural community or modeled Covered Species habitat) times the proportion of the impacts from Covered Activity development anticipated with the DFA. Alternative 1 includes DRECP Variance Lands, and these areas are not considered impacted or conserved in this analysis. In Alternative 1, the SAAs from the Preferred Alternative are part of the Reserve Design Lands, and this analysis of Alternative 1 includes conservation within those lands.

Impact BR-1: Siting, construction, decommissioning, and operational activities would result in loss of native vegetation.

The following provides an analysis of the impacts of the development of Covered Activities on natural communities in the Plan Area. Table IV.7-100 shows the impacts to natural communities. An effects summary by general community is provided below. Appendix R2 provides a detailed analysis of natural community effects by ecoregion subarea.

<u>California forest and woodlands</u>

California forest and woodlands are limited to the higher elevations in the Plan Area, where they occur primarily in the Tehachapi Mountains in Kern County and the mountains in southwest San Bernardino County.

Overall, approximately 40 acres (0.03%) of California forest and woodlands would be impacted under Alternative 1. Because California forest and woodlands are located primarily in peripheral portions of the Plan Area and with little overlap with DFAs, impacts to these communities are limited in extent and are primarily associated with effects from transmission. Furthermore, CMAs would be implemented to address breeding, nesting, or roosting species (AM-DFA-BAT-1, AM-RES-RL-BAT-1, and AM-RES-RL-BAT-2; see Chapter II.3, Preferred Alternative), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects.

California forest and woodlands provide habitat for the following Covered Species: Tehachapi slender salamander, golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, bighorn sheep, and Bakersfield cactus. Therefore, impacts to this community may have an adverse effect on these species by removing or degrading suitable habitat; however, application of species-specific CMAs would help avoid and minimize that effect and compensation CMAs would offset that effect (COMP-1 and COMP-2).

Chaparral and coastal scrubs (Cismontane scrub)

Chaparral in the Plan Area occurs in the Tehachapi Mountains and at the base of the San Gabriel Mountains near Antelope Valley in the southern portion of the Plan Area. Coastal scrubs in the Plan Area generally occur east of the Tehachapi Mountains near Mojave, in the southern portion of the Plan Area from Mountain Top Junction east of Highway 138 east to Mojave River Forks Regional Park, in the Fort Irwin area, and in scattered locations west to the Plan Area boundary.

Overall, approximately 1,000 acres (0.9%) of the chaparral and coastal scrubs would be impacted under Alternative 1. Impacts would be primarily from solar development and most impacts would be to Central and South Coastal Californian coastal sage scrub. All impacts to chaparral and coastal scrubs would occur in the West Mojave and Eastern Slopes and the Pinto Lucerne Valley and Eastern Slopes subareas. CMAs would be implemented to address breeding, nesting, or roosting species (AM-DFA-BAT-1, AM-RES-RL-BAT-1, AM-RES-RL-BAT-2, AM-DFA-PLANT-1 through AM-DFA-PLANT-3, AM-RES-BLM-PLANT-1, and AM-RES-RL-PLANT-1 through AM-RES-RL-PLANT-3), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects and compensation CMAs (COMP-1 and COMP-2) would offset the effect.

Chaparral and coastal scrubs provide habitat for the following Covered Species: golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat,

Parish's daisy, and Bakersfield cactus. Therefore, impacts to this general community may have a negative effect on these species by removing or degrading suitable habitat. However, application of species-specific CMAs would help avoid and minimize that effect and compensation CMAs would offset the effect.

Desert conifer woodlands

The desert conifer woodlands in the Plan Area primarily occur in the Tehachapi Mountains, along the southwestern boundary of the Plan Area to the San Gabriel Mountains, in the Providence and Bullion Mountains, Kingston and Funeral Mountains, and the Clark Mountain Range. All of the desert conifer woodlands in the Plan Area are classified as Great Basin pinyon-juniper woodland.

Overall, approximately 1,000 acres (0.4%) of the desert conifer woodlands would be impacted under Alternative 1. Impacts would be primarily from solar development. All impacts to desert conifer woodlands would occur in the West Mojave and Eastern Slopes and Pinto Lucerne Valley and Eastern Slopes subareas. CMAs would be implemented to address breeding or roosting species (AM-DFA-BAT-1, AM-RES-RL-BAT-1, and AM-RES-RL-BAT-2), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects and compensation CMAs would offset the effect (COMP-1 and COMP-2).

Desert conifer woodlands provide habitat for the following Covered Species: Tehachapi slender salamander, golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, bighorn sheep, and Parish's daisy. Therefore, impacts to this general community may have a negative effect on these species by removing or degrading suitable habitat; however, application of species-specific CMAs would help avoid and minimize that effect and compensation CMAs would offset that effect.

Desert outcrop and badlands

Desert outcrop and badlands occur throughout much of the Plan Area, but is most prevalent in the eastern and southern portions south of the Piute Valley. All of the desert outcrop and badlands is classified as North American warm desert bedrock cliff and outcrop.

Overall, approximately 5,000 acres (0.3%) of the desert outcrop and badlands would be impacted under Alternative 1. Impacts would be primarily from solar development and transmission effects. Impacts to desert outcrop and badlands are widely distributed with impacts in seven of the ten subareas. However, impacts are concentrated in the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas. CMAs would be implemented to address breeding, nesting, or roosting species (AM-DFA-BAT-1, AM-RES-RL-BAT-1, and AM-RES-RL-BAT-2), soil resources (AM-PW-10), weed management (AM-

PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects and compensation CMAs would offset the effect (COMP-1 and COMP-2).

Desert outcrop and badlands provide habitat for the following Covered Species: golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, and bighorn sheep. These communities also provide habitat for desert kit fox (Planning Species). Covered Species associated with desert scrub may also be associated with this general community. Therefore, impacts to desert outcrop and badlands may have a negative effect on these species by removing or degrading suitable habitat; however, application of species-specific CMAs would help avoid and minimize that effect and compensation CMAs would offset the effect.

Desert scrubs

Desert scrubs, which comprise more than 70% of the Plan Area, are distributed throughout the Plan Area. There are nine desert scrub natural communities identified in the Plan Area, but the majority of the general community on available lands is comprised of lower bajada and fan Mojavean–Sonoran desert scrub (82% or 10,830,000 acres).

Overall, approximately 85,000 acres (0.6%) of desert scrubs would be impacted under Alternative 1. Impacts would be primarily from solar development, but transmission accounts for approximately 17,000 acres of impacts to desert scrub and wind and geothermal account for about 2% and 7% of impacts, respectively. Most impacts would be to the most prevalent desert scrub community: Lower Bajada and Fan Mojavean - Sonoran desert scrub. Intermontane seral shrubland and shadscale - saltbush cool semi-desert scrub would have the greatest proportion of impacts, but only 2% of these communities would be impacted (compared with 1% or less for all other desert scrub communities).

The majority of impacts to desert scrub would occur in the West Mojave and Eastern Slopes and Imperial Borrego Valley subareas, but impacts to desert scrubs are widely distributed; the only subareas without impacts to this general community are the Kingston and Funeral Mountains, Panamint Death Valley, and Piute Valley and Sacramento Mountains subareas. CMAs would be implemented to address breeding, nesting, or roosting species, soil resources that would also help reduce adverse effects to desert scrubs. These include avoidance, setbacks, and/or suitable habitat impact caps for flat-tailed horned lizard (AM-RES-RL-ICS-8 and AM-RES-RL-ICS-9), desert tortoise (AM-DFA-ICS-7, AM-DFA-ICS-9 through AM-DFA-ICS-11, and AM-RES-RL-ICS-1 through AM-RES-RL-ICS-4), Mohave ground squirrel (AM-DFA-ICS-38 and AM-RES-BLM-ICS-8), bat Covered Species (AM-DFA-BAT-1, AM-RES-RL-BAT-1,and AM-RES-RL-BAT-2), and plant Covered Species (AM-DFA-PLANT-1 through AM-DFA-PLANT-3, AM-RES-BLM-PLANT-1, and AM-RES-RL-PLANT-1 through AM-RES-RL-PLANT-3). Furthermore, soil resources (AM-PW-10), weed

management (AM-PW-11), and fire prevention/protection (AM-PW-12) CMAs would be implemented that would help avoid and minimize these effects and compensation CMAs would offset the effect (COMP-1 and COMP-2).

Desert scrubs provide habitat for the following Covered Species: golden eagle, California condor, Bendire's thrasher, burrowing owl, Swainson's hawk, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, Mohave ground squirrel, bighorn sheep, desert tortoise, flat-tailed horned lizard, Mojave fringe-toed lizard, triple-ribbed milk-vetch, alkali mariposa-lily, desert cymopterus, Mojave tarplant, Little San Bernardino Mountains linanthus, Mojave monkeyflower, and Bakersfield cactus. These communities also provide habitat for burro deer and desert kit fox (Planning Species). Therefore, impacts to this general community may have a negative effect on these species by removing or degrading suitable habitat; however, application of species-specific CMAs would help avoid and minimize that effect and compensation CMAs would offset the effect.

Dunes

Dune communities are restricted but scattered across in the Plan Area, and include approximately 12 systems in the Mojave Desert and lower Great Basin Desert and 4 systems in the Sonoran Desert, as well as numerous smaller dunes. The largest dune area is located in the East Mesa-Sand Hill portion of the Sonoran Desert. Dune natural communities in the Plan Area are classified as North American warm desert dunes and sand flats.

Impacts to dune communities would be minimized under Alternative 1 through application of the dune avoidance and minimization CMAs (AM-DFA-DUNE-1 through AM-DFA-DUNE-3, AM-RES-BLM-DUNE-1, AM-RES-BLM-DUNE-2, and AM-RES-RL-DUNE-1 through AM-RES-RL-DUNE-3), as well as landscape-level CMAs for Aeolian processes (AM-LL-3). Compensation CMAs would offset any impacts determined to be unavoidable (COMP-1 and COMP-2).

Dune communities provide habitat for the following Covered Species: Mojave fringe-toed lizard and flat-tailed horned lizard. Therefore, avoidance of impacts to this general community would benefit these species and compensation CMAs would offset any impacts determined to be unavoidable.

Grasslands

Grassland communities cover just over 1% of the Plan Area but are scattered throughout the Area. They are most common in the western portion of the Plan Area, especially along the boundary from east of Bakersfield to the southern end of the San Bernardino National Forest.

Overall, approximately 6,000 acres (2.5%) of grassland communities would be impacted under Alternative 1. The majority of impacts to grassland communities would be from solar development in the West Mojave and Eastern Slopes subarea. Impacts would also occur in the Cadiz Valley and Chocolate Mountains, Mojave and Silurian Valley, and Pinto Lucerne Valley and Eastern Slopes subareas. CMAs would be implemented to address breeding, nesting, or roosting species (AM-DFA-AG-2), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects and compensation CMAs would offset the effect (COMP-1 and COMP-2).

Grassland communities provide habitat for the following Covered Species: golden eagle, burrowing owl, Swainson's hawk, mountain plover, and Bendire's thrasher. These communities also provide habitat for desert kit fox (Planning Species). Therefore, impacts to this community may have a negative effect on these species by removing or degrading suitable habitat; however, application of species-specific CMAs would help avoid and minimize that effect and compensation CMAs would offset the effect.

Riparian

Riparian communities cover nearly 6% of the Plan Area but are scattered throughout the Area, but are most common in the southern portion of the Plan Area in the Colorado River area, in the Cadiz and Chocolate Mountains and Imperial Borrego Valley subareas, and along major drainages such as the Mojave, Colorado, and Amargosa Rivers.

Riparian communities include microphyll woodlands, which are important vegetation assemblages often associated with desert washes that are comprised of the Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub natural communities. A subset of these communities would be considered groundwater-dependent vegetation (e.g., mesquite bosques). Under Alternative 1, microphyll woodlands have a limited overlap with DFAs.

Impacts to riparian communities would be avoided under Alternative 1 through application of the riparian CMAs (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). In addition, setbacks from riparian communities would be required that range from 200 feet for Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub to 0.25 mile for Southwestern North American riparian evergreen and deciduous woodland and Southwestern North American riparian/wash scrub (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). Compensation CMAs would offset any impacts determined to be unavoidable (COMP-1 and COMP-2). Riparian communities provide habitat for the following Covered Species: California black rail, Gila woodpecker, Yuma clapper rail, least Bell's vireo, southwestern

willow flycatcher, western yellow-billed cuckoo, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, and Tehachapi slender salamander. These communities also provide habitat for burro deer (Planning Species). In addition, species associated with desert scrub are also associated with Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub. Avoidance of impacts to riparian communities would benefit these species. Furthermore, there are also CMAs to avoid impacts to riparian species including pre-construction nesting bird surveys for riparian and wetland bird Covered Species. Application of species-specific CMAs would also benefit species associated with riparian communities. Compensation CMAs would offset any unavoidable impacts.

Wetlands

Wetland communities cover nearly 5% of the Plan Area but are scattered throughout the Area, including the Owens River Valley, and around various dry lakes and playas. The largest single contributor to wetlands in the Plan Area is the open water of the Salton Sea (22% of the wetlands). However, several isolated wetlands occur throughout the Plan Area (e.g. Amargosa WSR) and these are important for their tendency to be populated with locally endemic species of plants and animals.

Overall, approximately 11,000 acres (1.3%) of wetland communities, specifically North American warm desert alkaline scrub, herb playa and wet flat, and open water, would be impacted under Alternative 1. All impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep, except those impacts determined to be unavoidable, would be avoided under Alternative 1 through application of the wetland CMAs, including a 0.25-mile setback. The majority of the impacts to wetland communities would be in DFAs in open water of the Salton Sea in the Imperial Borrego Valley subarea.

CMAs for North American warm desert alkaline scrub and herb playa and wet flat, southwestern North American salt basin and high marsh, and other undifferentiated wetland-related land covers (i.e., "Playa", "Wetland", and "Open Water") would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided riparian or wetland natural communities (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). Compensation CMAs would offset impacts to these features (COMP-1 and COMP-2).

Wetland communities provide habitat for the following Covered Species: California black rail, Yuma clapper rail, tricolored blackbird, California leaf-nosed bat, pallid bat, Townsend's big-eared bat, desert pupfish, Mohave tui chub, Owens pupfish, and Owens tui chub. In addition, species associated with desert scrub are also associated with Southwestern North American Salt Basin and High Marsh. Avoidance of impacts to wetland

communities would benefit these species. Furthermore, there are also CMAs to avoid impacts to wetland species including pre-construction nesting bird surveys for riparian and wetland bird Covered Species. In addition, application of species-specific CMAs would help avoid and minimize impacts to species associated with wetland communities. Compensation CMAs would offset any impacts determined to be unavoidable.

Table IV.7-100
Plan-Wide Impact Analysis for Natural Communities – Alternative 1

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
California forest and woodland						
Californian broadleaf forest and woodland	72,000	0	0	0	0	0
Californian montane conifer forest	78,000	0	0	0	40	40
Chaparral and coastal scrub community (Cismontane scrub)						
Californian mesic chaparral	4,000	0	0	0	0	0
Californian pre-montane chaparral	1,000	0	0	0	0	0
Californian xeric chaparral	24,000	0	0	0	20	20
Central and south coastal California seral scrub	1,000	0	0	0	0	0
Central and South Coastal Californian coastal sage scrub	54,000	800	30	0	200	1,000
Western Mojave and Western Sonoran Desert borderland chaparral	24,000	0	0	0	20	30
Desert conifer woodlands						
Great Basin Pinyon - Juniper Woodland	287,000	800	40	0	200	1,000
Desert outcrop and badlands						
North American warm desert bedrock cliff and outcrop	1,613,000	2,000	10	300	2,000	5,000
Desert Scrub						
Arizonan upland Sonoran desert scrub	57,000	0	0	0	0	0

Table IV.7-100
Plan-Wide Impact Analysis for Natural Communities – Alternative 1

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Intermontane deep or well-drained soil scrub	106,000	700	20	0	100	800
Intermontane seral shrubland	74,000	1,000	40	0	100	1,000
Inter-Mountain Dry Shrubland and Grassland	437,000	3,000	0	0	1,000	4,000
Intermountain Mountain Big Sagebrush Shrubland and steppe	76,000	0	0	0	0	0
Lower Bajada and Fan Mojavean - Sonoran desert scrub	10,858,000	47,000	2,000	5,000	14,000	68,000
Mojave and Great Basin upper bajada and toeslope	1,333,000	5,000	200	0	500	5,000
Shadscale - saltbush cool semi-desert scrub	279,000	4,000	30	200	1,000	5,000
Southern Great Basin semi-desert grassland	100	0	0	0	0	0
Dunes[3]						
North American warm desert dunes and sand flats	282,000	0	0	0	0	0
Grassland						
California Annual and Perennial Grassland	230,000	6,000	100	0	400	6,000
California annual forb/grass vegetation	8,000	20	0	0	0	20
Riparian[3]						
Madrean Warm Semi-Desert Wash Woodland/Scrub	697,000	0	0	0	0	0
Mojavean semi-desert wash scrub	30,000	0	0	0	0	0
Riparian	600	0	0	0	0	0
Sonoran-Coloradan semi-desert wash woodland/scrub	191,000	0	0	0	0	0

Table IV.7-100
Plan-Wide Impact Analysis for Natural Communities – Alternative 1

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Southwestern North American riparian evergreen and deciduous woodland	6,000	0	0	0	0	0
Southwestern North American riparian/wash scrub	66,000	0	0	0	0	0
Wetland3						
Arid West freshwater emergent marsh	4,000	0	0	0	0	0
Californian warm temperate marsh/seep	400	0	0	0	0	0
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	310,000	900	20	0	300	1,000
Open Water	209,000	5,000	0	2,000	1,000	8,000
Playa	78,000	0	0	0	20	20
Southwestern North American salt basin and high marsh	261,000	1,000	30	0	200	1,000
Wetland	8,000	100	0	0	20	200
Other Land Cover – Developed and Disturbed Areas						
Agriculture	711,000	50,000	200	9,000	9,000	68,000
Developed and Disturbed Areas	447,000	200	0	50	2,000	2,000
Not Mapped	7,000	10	0	0	10	20
Rural	114,000	2,000	0	400	800	3,000
Total	**19,040,000**	**129,000**	**2,000**	**17,000**	**34,000**	**182,000**

1 Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

2 Solar impacts include ground-mounted distributed generation.

3 Impacts to the dune community, riparian communities, arid west freshwater emergent marsh, and Californian warm temperate marsh/seep would be avoided through implementation of CMAs. Only impacts determined to be unavoidable would occur in these natural communities.

Notes: The natural community classification system is described in Chapter III.7 and follows CDFG 2012. Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not

sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Rare natural communities include natural community alliances with state rarity rankings S1, S2, or S3 (critically imperiled, imperiled, or vulnerable). Of the 51 rare natural community alliances mapped in the Plan Area, 4 rare alliances would be impacted under Alternative 1, with most of the impacts to 5,000 acres of Joshua tree woodland (*Yucca brevifolia*) occurring in the Mojave and Silurian Valley, West Mojave and Eastern Slopes, and Pinto Lucerne Valley and Eastern Slopes subareas. CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection that would help avoid and minimize these effects on rare natural communities. Additionally, AM-DFA-ONC-1 and -2 would require inventorying and preserving or transplanting cactus, yuccas, and succulents. While the compensation CMAs would offset the lost habitat acreage of these impacts, the compensation CMAs do not specifically require the replacement of, or mitigation for, specific rare natural community alliances. After application of the CMAs, impacts to rare natural communities from Alternative 1 would be adverse and would require mitigation.

Impact BR-2: Siting, construction, decommissioning, and operational activities would result in adverse effects to jurisdictional waters and wetlands.

Siting, construction, decommissioning, and operations of Covered Activities have the potential to result in adverse effects to federal or state jurisdictional waters and wetlands. In the Plan Area, jurisdictional waters and wetlands would likely include the riparian and wetland communities analyzed under Impact BR-1 and may also include other features including playas, seeps/springs, major rivers, and ephemeral drainage networks.

All Covered Activities would be required to comply with existing, applicable federal and state laws and regulations related to jurisdictional waters and wetlands. Additionally, all impacts to riparian communities would be avoided under Alternative 1 through application of the riparian CMAs including riparian setbacks. All impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep wetlands would be avoided under Alternative 1 through application of the wetland CMAs, including wetland setbacks (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). Approximately 10,000 acres of other wetland communities would be impacted under Alternative 1. See the analysis for the loss of native vegetation provided under BR-1 for a discussion of these potential impacts. All or a portion of the estimated wetland impacts could result in adverse effects to jurisdictional waters and wetlands without compensation. Compensation CMAs would offset any impacts determined to be unavoidable.

Additionally, playas, seeps/springs, and major rivers are waters and wetland features that provide hydrological functions for jurisdictional waters and wetlands. Adverse effects to

these features would have the potential to impact the jurisdictional waters and wetland they support.

Playa

Approximately 1% (900 acres) of playa would be impacted by Covered Activities under Alternative 1. The majority of impacts would be associated with solar (600 acres), with 20 acres of wind impacts, and 300 acres of transmission impacts. Ecoregion subareas of potential impacts to playas include the Cadiz Valley and Chocolate Mountains, Mojave and Silurian Valley, Owens River Valley, Pinto Lucerne Valley and Eastern Slopes, Providence and Bullion Mountains, and West Mojave and Eastern Slopes.

Application of species-specific CMAs would help avoid and minimize impacts to species associated with playas (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). CMAs would also require compliance with all applicable laws and regulations pertaining to wetlands and waters, including playas (AM-PW-9 and AM-LL-2). Compensation CMAs would offset impacts to these features (COMP-1 and COMP-2).

Seep/Spring

Seeps occur within DFAs and transmission corridors and potential impacts to seep/spring locations have the potential to occur under Alternative 1 in the following ecoregion subareas: Imperial Borrego Valley, Mojave and Silurian Valley, Owens River Valley, Pinto Lucerne Valley and Eastern Slopes, and West Mojave and Eastern Slopes. Impacts to seeps and springs would be adverse absent implementation of avoidance measures. Impacts to seep/spring locations and associated Covered Species and hydrological functions would be avoided through adherence to avoidance and minimization CMAs, including habitat assessments and avoidance of seeps with 0.25 mile setbacks (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). Compensation CMAs would offset any impacts determined to be unavoidable (COMP-1 and COMP-2).

Major Rivers

Under Alternative 1, there would no direct impacts to any of the four major rivers within the Plan Area – Amargosa, Colorado, Mojave, and Owens Rivers. However, changes in hydrological conditions associated with development could adversely impact these rivers. Riparian CMAs would require avoidance of these features with setbacks (AM-DFA-RIPWET-1).

Ephemeral Drainages

Ephemeral drainages occur throughout the Plan Area, and some of these features could be determined to state or federal jurisdictional waters. Impacts to ephemeral drainages would likely occur from Covered Activities. Application of riparian avoidance CMAs (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9) would avoid and minimize impacts to a portion of the ephemeral drainages within DFAs. Additionally, all Covered Activities would be required to comply with existing, applicable federal and state laws and regulations related to jurisdictional waters and wetlands.

Impact BR-3: Siting, construction, decommissioning, and operational activities would result in degradation of vegetation.

Siting, construction, decommissioning, and operational Covered Activities would result in the degradation of vegetation through the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants. The degree to which these factors contribute to the degradation of vegetation corresponds to the distribution of Covered Activities in the Plan Area that would result in dust, fire, and introduction of invasive plants or that would use dust suppressants and implement fire management. As described in Section IV.7.2.1, the extent of some of these adverse effects may occur at or beyond the source of these effects, the project footprint, or the project area depending on the type of effect and other environmental considerations. As such, the potential adverse effects caused by these factors were evaluated using the overlap of the natural community mapping and the estimated distribution of Covered Activities across subareas.

Under the Alternative 1, almost 6% of the total Plan Area would be DFAs that allow renewable energy development. Based on the planned renewable energy generation and transmission under Alternative 1, the vegetation degradation from dust, dust suppressants, fire, fire management, and invasive plants would collectively result in the terrestrial operational impacts shown in Table IV.7-101. These impacts would mostly occur in the Imperial Borrego Valley and West Mojave and Eastern Slopes subareas. The Cadiz Valley and Chocolate Mountains and the Pinto Lucerne Valley and Eastern Slopes subareas would also contain prevalent amounts of terrestrial operational impacts in the Plan Area. As a result, these subareas would have the greatest potential to result in the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants.

Table IV.7-101
Plan-Wide Terrestrial Operational Impacts – Alternative 1

Ecoregion Subarea	Solar Impact (acres)[1]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Cadiz Valley and Chocolate Mountains	21,000	1,000	-	7,000	29,000
Imperial Borrego Valley	47,000	-	17,000	16,000	80,000
Kingston and Funeral Mountains	-	-	-	-	-
Mojave and Silurian Valley	5,000	-	-	2,000	7,000
Owens River Valley	6,000	-	-	2,000	8,000
Panamint Death Valley	-	-	-	-	-
Pinto Lucerne Valley and Eastern Slopes	12,000	3,000	-	4,000	19,000
Piute Valley and Sacramento Mountains	-	-	-	-	-
Providence and Bullion Mountains	2,000	-	-	600	2,600
West Mojave and Eastern Slopes	36,000	5,000	-	1,000	42,000
Total	**129,000**	**10,000**	**17,000**	**34,000**	**190,000**

[1] Solar impacts include ground-mounted distributed generation.

Notes: Terrestrial operational impacts collectively refers to vegetation degradation impacts (BR-3) from dust, dust suppressants, fire, fire management, and invasive plants and wildlife impacts (BR-4) from creation of noise, predator avoidance behavior, lighting and glare. For the purposes of analysis, terrestrial operational impacts were quantified using the project area extent for solar and geothermal, using 25% of the project area for wind, and the right-of-way area for transmission.

Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation, short-term and long-term wind (excluding project area impacts), geothermal project area, and transmission impacts. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Dust and Dust Suppressants

Most natural communities and plant Covered Species would be susceptible to degradation from physical damage, reduced photosynthesis, and reduced net primary productivity as a result of dust created by renewable energy development. However, due to the vegetation degradation as a result dust natural communities containing Mojave desert shrubs are particularly susceptible to alteration of water usage due to dust. These natural

communities are primarily affected throughout the Plan Area by Covered Activities in the West Mojave and Eastern Slopes subarea. The Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, and Pinto Lucerne Valley and Eastern Slopes subareas also contain lesser levels of these impacts. Plant Covered Species that could also be affected by abrasion, vegetation loss, root exposure, and burial as a result of dust are prevalent near the DFAs in the Pinto Lucerne Valley and Eastern Slopes subarea, which contains most of the plant Covered Species impacts in the Plan Area. Additionally, a smaller distribution of impacts to plant Covered Species would occur in the DFAs located within the West Mojave and Eastern Slopes and Owens River Valley subareas. Therefore, considering the distribution of DFAs and these sensitive natural communities and plant Covered Species the West Mojave and Eastern Slopes subarea would experience the greatest magnitude of dust-related impacts. Vegetation degradation as a result of dust would also be prevalent in the Pinto Lucerne Valley and Eastern Slopes subarea.

The application of dust suppressants is a common management practice used during construction and operations and is a Covered Activity under the Plan for reducing dust emissions. Dust-related degradation of vegetation would be further minimized with the incorporation of avoidance and minimization CMAs. The Plan-wide avoidance and minimization CMAs would generally identify vegetation in the project area (AM-PW-1), utilize standard practices to minimize the amount of exposed soils (AM-PW-14) and reduce dust caused by soil erosion (AM-PW-10). Additionally, Alternative 1 would implement CMAs that applicable in the DFAs would also serve to reduce vegetation degradation from dust including AM-DFA-ONC-1 and AM-DFA-ONC-2, which would require habitat assessments of natural communities and protection/salvage plans for particular plants found on project sites. CMAs AM-DFA-PLANT-through AM-DFA-PLANT-3 would also result in the surveying of plant Covered Species, avoidance and a 0.25 mile setback from plant Covered Species occurrences, and would place an impact caps on suitable habitat for plant Covered Species. Furthermore, various CMAs would reduce potential vegetation degradation from dust created by operation and maintenance of transmission in the reserve design envelope including measures for avoidance of plant Covered Species by substations, setbacks for plant Covered Species, and impact caps on suitable habitat for plant Covered Species (AM-RES-RL-PLANT-1 through AM-RES-RL-PLANT-3). The CMA AM-TRANS-4 would restrict transmission to within designated utility corridors, thereby minimizing the creation of dust from exposed soils as a result of transmission throughout the Plan Area.

The application of dust suppressants can result in chemical and physical changes to an ecosystem, alter hydrological function of soils and drainage areas, and increase pollutant loads in surface water. As a result, riparian and wetland natural communities would be affected by the use of dust suppressants. These natural communities are most prevalent near

DFAs in the Imperial Borrego Valley subarea, which contains the majority of impacts to riparian and wetland natural communities in the Plan Area. Plant Covered Species that could also be affected by dust suppressants and are prevalent near the DFAs in the West Mojave and Eastern Slopes and Owens River Valley subareas. As such, these subareas would contain the largest potential amount of vegetation degradation because of dust suppressants.

Avoidance and minimization CMAs implemented as part of Alternative 1, including AM-PW-9 and AM-PW-10, would utilize standard practices to reduce erosion and runoff of dust suppressant outside of areas where they are applied. The CMA AM-DFA-RIPWET-1 would also establish setbacks and avoidance requirements for all riparian natural communities and some wetland natural communities. Therefore, these measures would minimize potential adverse effects of dust suppressants used during siting, construction, and operational Covered Activities.

Fire and Fire Management

Anthropogenic ignitions of fires that could result from operational and maintenance activities associated with renewable energy facilities could destroy the natural communities found in the Plan Area. Desert scrub natural communities are naturally slow to recover from fire episodes and are more vulnerable to proliferation of non-native grasses that can often successfully compete with and overcome native assemblages. The addition of non-native grasses can create a positive feedback loop of increasing fire frequency and intensity, resulting in significant and potentially permanent community type conversion. Within the Plan Area desert scrub natural communities are primarily affected by Covered Activities within the West Mojave and Eastern Slopes subarea, which contains most of the impacts in the Plan Area and to a lesser extent in the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, as well as the Pinto Lucerne Valley and Eastern Slopes subareas. As a result of this distribution of renewable energy development and these natural communities, the greatest magnitude of vegetation degradation as a result of fire would occur in the West Mojave and Eastern Slopes subarea.

Construction and maintenance of fire breaks and other fire management techniques would typically result in the removal of vegetation from woodland, chaparral, and grassland natural communities. However, target fuels reductions in areas of high incidence of non-native, invasive, species (e.g. salt cedar hot spots) can have a beneficial effect on native habitats. Within the Plan Area the potential impacts from Covered Activities on California forest and woodland, chaparral, and grassland natural communities are located mostly in the West Mojave and Eastern Slopes and Pinto Lucerne Valley and Eastern Slopes subareas.

The potential degradation of vegetation due to fire and fire management would vary depending on project-specific factors, such as size of the project footprint and proximity to

fire prone areas. However, under Alternative 1 avoidance and minimization CMAs would be implemented to minimize the potential adverse operational effects of fire and fire management. Specifically, AM-PW-12 would require projects to use standard practices for fire prevention/protection that would minimize the amount of vegetation clearing and fuel modification. Additionally AM-RES-RL-ICS-5 would require fire suppression activities to minimize the amount of desert tortoise habitat burned in the reserve design envelope. These measures would minimize the amount of vegetation degradation from fire and fire management during siting, construction, and operational Covered Activities.

Invasive Plants

The introduction of invasive plants can be caused by siting, construction, and operational Covered Activities including transportation of invasive plants on the undercarriage of vehicles, creation of disturbed areas, and other environmental changes that favor invasive plant growth. Invasive plants can degrade vegetation by increasing the fuel load and the frequency of fires in plant communities and may induce allelopathic effects that hinder the growth or establishment of other plant species.

Most vegetation, including natural communities and plant Covered Species, are generally susceptible to the adverse effects of invasive plants. As such, the most vegetation degradation caused by introduction of invasive plants would occur in the areas with the greatest amount of natural community and plant Covered Species impacts due to renewable energy development. Under Alternative 1 this would occur in the Imperial Borrego Valley, Pinto Lucerne Valley and Eastern Slopes, and the West Mojave and Eastern Slopes subareas.

The potential vegetation degradation effects that could result from siting, construction, and operational Covered Activities would be minimized through implementation of avoidance and minimization CMAs under Alternative 1. Specifically, the Plan-wide CMA AM-PW-7 would ensure the timely restoration of temporarily disturbed areas that could otherwise promote invasive plants during operations. Additional CMAs would require the use of standard practices to control weeds and invasive plants (AM-PW-11) and require the responsible use of herbicides to minimize potential vegetation degradation (AM-PW-15) for all Covered Activities throughout the Plan Area.

Impact BR-4: Siting, construction, decommissioning, and operational activities would result in loss of listed and sensitive plants; disturbance, injury, and mortality of listed and sensitive wildlife; and habitat for listed and sensitive plants and wildlife.

The following provides an analysis of the impacts of the development of Covered Activities on sensitive plants and wildlife and their habitat in the Plan Area, including Covered Species and non-Covered Species. In addition to the analysis of the loss of sensitive species

and their habitat provided here under Impact BR-4, impacts to nesting birds are addressed under Impact BR-5, impacts on wildlife movement are addressed under Impact BR-6, impacts of habitat fragmentation are addressed under Impact BR-7, impacts of increased predation are addressed under Impact BR-8, and impact of operations on avian, bat, and insect species are addressed under Impact BR-9.

The impact analysis under Impact BR-4 includes the following subsections:

- Covered Species Habitat Impact Analysis by Ecoregion Subarea
- Specific Covered Species Impact Analyses
- Indirect and Terrestrial Operational Impact Analysis
- Non-Covered Species Impact Analysis

Covered Species Habitat Impact Analysis by Ecoregion Subarea

Impacts to plant and wildlife species and their habitat would result from the implementation of Covered Activities. Table IV.7-102 provides the Plan-wide impact analysis for Covered Species habitat. As described in Section IV.7.1.1, the reported impact acreage is based on the overlap of the DFAs and the modeled Covered Species habitat times the proportion of the impacts from Covered Activity development anticipated with the DFA. The majority of impacts to plant and wildlife species and their habitat under Alternative 1 would occur in the Imperial Borrego Valley, West Mojave and Eastern Slopes, and Cadiz Valley and Chocolate Mountains subareas. Impacts to plant and wildlife species and their habitat would also occur in the following subareas under Alternative 1: Mojave and Silurian Valley, Owens River Valley, Pinto Lucerne Valley and Eastern Slopes, and Providence and Bullion Mountains. Supplemental impact analysis tables for impacts to Covered Species habitat by ecoregion subarea are provided in Appendix R2.

West Mojave and Eastern Slopes Ecoregion Subarea

Renewable energy development in the West Mojave and Eastern Slopes subarea would mostly be from solar development, but would also include impacts from wind and transmission development. Typical impacts from these Covered Activities on plant and wildlife species and their habitat is described in Section IV.7.2. Impacts to suitable habitat for Agassiz's desert tortoise would occur in this subarea. CMAs requiring avoidance of desert tortoise conservation areas (AM-DFA-ICS-5) and other CMAs for this species and its habitat would further avoid and minimize the impacts on this species to less than the acreage reported in Table IV.7-102.

There are impacts to suitable habitat for several bird Covered Species in the West Mojave and Eastern Slopes subarea, including Bendire's thrasher, burrowing owl, California condor, golden eagle, Least Bell's vireo, mountain plover, southwestern willow flycatcher, Swainson's hawk, and tricolored blackbird. CMAs requiring avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further avoid and minimize the impacts on southwestern willow flycatcher and tricolored blackbird to less than the acreage reported in Table IV.7-102. Additionally, the CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs (AM-DFA-AG-2).

Suitable habitat for bighorn sheep, desert kit fox, Mohave ground squirrel, pallid bat, and Townsend's big-eared bat would be impacted in this subarea. The siting of the DFAs under Alternative 1 largely avoid habitat for bighorn sheep. The CMAs require avoidance of and setbacks from riparian and wetland habitat (AM-DFA-RIPWET-1) that would further reduce the impacts on these habitats used by Mohave ground squirrel, pallid bat, and Townsend's big-eared bat to less than the acreage reported in Table IV.7-102.

Suitable habitat for the following plant species would be impacted in the West Mojave and Eastern Slopes subarea: alkali mariposa-lily, Bakersfield cactus, Barstow woolly sunflower, desert cymopterus, Mojave monkeyflower, and Mojave tarplant. Although modeled suitable habitat for these species may be impacted by Covered Activities in this subarea, the CMAs require surveys for plant Covered Species for all Covered Activities, and the CMAs requiring avoidance of and setbacks from occupied habitat (AM-DFA-PLANT-1 through AM-DFA-PLANT-3) would further reduce the impacts on these species to less than the acreage reported in Table IV.7-102.

Cadiz Valley and Chocolate Mountains Ecoregion Subarea

Renewable energy development within the Cadiz Valley and Chocolate Mountains subarea would be primarily from solar energy development, but would also include impacts from wind and transmission. Impacted suitable habitat would be mostly desert scrub in this subarea. The Cadiz Valley and Chocolate Mountains subarea provides suitable habitat for amphibians and reptiles, including Agassiz's desert tortoise and Mojave fringe-toed lizard, that would be impacted. The siting of the DFAs under Alternative 1 largely avoid habitat for Mojave fringe-toed lizard, and CMAs require avoidance of and setbacks from dune habitat (AM-DFA-DUNE-1 through AM-DFA-DUNE-3) would further avoid and minimize the impacts on these species to less than the acreage reported in Table IV.7-102. Compensation CMAs would offset habitat loss for these species.

Impacts would occur to the following covered bird species in this subarea: Bendire's thrasher, burrowing owl, California black rail, Gila woodpecker, golden eagle, greater sandhill crane, mountain plover, and western yellow-billed cuckoo. CMAs require

avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further avoid and minimize the impacts on California black rail and western yellow-billed cuckoo to less than the acreage reported in Table IV.7-102.

Impacts to suitable habitat for all Covered mammals occur in the Cadiz Valley and Chocolate Mountains subarea except for Mohave ground squirrel. The siting of the DFAs under Alternative 1 largely avoid habitat for bighorn sheep. The CMAs require avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further reduce the impacts on these habitats used by California leaf-nosed bat, pallid bat, and Townsend's big-eared bat to less than the acreage reported in Table IV.7-102.

No impacts to suitable habitat for covered plant species are expected to occur. In addition, the CMAs require surveys for plant Covered Species for all Covered Activities, and the CMAs requiring avoidance of and setbacks from occupied habitat (AM-DFA-PLANT-1 through AM-DFA-PLANT-3) would further reduce any potential impacts on Covered plant species.

Imperial Borrego Valley Ecoregion Subarea

Renewable energy development within the Imperial Borrego Valley subarea would be primarily from solar energy development, but would also include impacts from geothermal and transmission development. Impacts would occur to desert outcrop and badland, desert scrub, and wetland communities. The Imperial Borrego Valley subarea provides suitable habitat for Agassiz's desert tortoise and flat-tailed horned lizard. The siting of the DFAs under Alternative 1 largely avoid habitat for flat-tailed horned lizard, and CMAs require avoidance of and setbacks from dune habitat (AM-DFA-DUNE-1 through AM-DFA-DUNE-3) would further avoid and minimize the impacts on this species to less than the acreage reported in Table IV.7-102.

Impacts would occur to suitable habitat for the following covered bird species in this subarea: Bendire's thrasher, burrowing owl, California black rail, Gila woodpecker, golden eagle, greater sandhill crane, least Bell's vireo, mountain plover, southwestern willow flycatcher, Swainson's hawk, tricolored blackbird, and Yuma clapper rail. CMAs require avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further avoid and minimize the impacts on southwestern willow flycatcher, tricolored blackbird, least Bell's vireo, California black rail, and Yuma clapper rail to less than the acreage reported in Table IV.7-102. Additionally, the CMAs would require avoidance of Swainson's hawk with setbacks within the DFAs (AM-DFA-AG-2).

Impacts to suitable habitat for desert pupfish, the only fish species with suitable habitat in this subarea, would occur under Alternative 1. The avoidance and setback provisions for managed

wetlands and agricultural drains (AM-DFA-RIPWET-1) would conserve wetland and riparian features within the agricultural matrix and provide conservation benefits to desert pupfish.

Impacts would occur to bighorn sheep mountain habitat in this subarea. Impacts to suitable habitat for other covered mammals species would occur for California leaf-nosed bat, pallid bat, and Townsend's big-eared bat. Impacts would also occur to burro deer and desert kit fox (Planning Species). The siting of the DFAs under Alternative 1 largely avoid habitat for bighorn sheep. The CMAs require avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further reduce the impacts on these habitats used by California leaf-nosed bat, pallid bat, and Townsend's big-eared bat to less than the acreage reported in Table IV.7-102.

No impacts to suitable habitat for covered plant species are expected to occur in the Imperial Borrego Valley subarea under Alternative 1. In addition, the CMAs require surveys for plant Covered Species for all Covered Activities, and the CMAs requiring avoidance of and setbacks from occupied habitat (AM-DFA-PLANT-1 through AM-DFA-PLANT-3) would further reduce any potential impacts on Covered plant species.

Table IV.7-102
Plan-Wide Impact Analysis for Covered Species Habitat – Alternative 1

Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Amphibian/Reptile						
Agassiz's desert tortoise	9,858,000	40,000	1,000	-	8,000	50,000
Flat-tailed horned lizard	758,000	9,000	-	7,000	6,000	22,000
Mojave fringe-toed lizard	1,094,000	7,000	70	-	3,000	10,000
Tehachapi slender salamander	48,000	-	-	-	-	-
Bird						
Bendire's thrasher	2,141,000	7,000	300	800	2,000	10,000
Burrowing owl	5,269,000	102,000	2,000	13,000	21,000	137,000
California black rail	197,000	3,000	-	900	1,000	5,000
California condor	1,240,000	13,000	300	-	800	14,000
Gila woodpecker	106,000	500	-	100	300	1,000
Golden eagle–foraging	10,747,000	14,000	300	50	7,000	21,000
Golden eagle–nesting	4,443,000	1,000	20	-	2,000	3,000
Greater sandhill crane	617,000	46,000	200	9,000	9,000	63,000

Table IV.7-102
Plan-Wide Impact Analysis for Covered Species Habitat – Alternative 1

Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Least Bell's vireo	226,000	200	10	20	100	400
Mountain plover	828,000	52,000	300	9,000	9,000	70,000
Southwestern willow flycatcher	317,000	8,000	30	1,000	2,000	11,000
Swainson's hawk	1,455,000	40,000	500	5,000	6,000	52,000
Tricolored blackbird	271,000	7,000	60	30	200	8,000
Western yellow-billed cuckoo	152,000	500	-	-	40	500
Yuma clapper rail	51,000	50	-	10	10	70
Fish						
Desert pupfish	8,145	24	-	8	4	37
Mohave tui chub	288	-	-	-	-	-
Owens pupfish	17,514	85	-	-	3	88
Owens tui chub	17,351	85	-	-	3	88
Mammal						
Bighorn sheep – inter-mountain habitat	3,854,000	2,000	60	-	1,000	4,000
Bighorn sheep – mountain habitat	6,649,000	4,000	200	-	3,000	7,000
California leaf-nosed bat	7,132,000	14,000	100	3,000	10,000	27,000
Mohave ground squirrel	2,383,000	29,000	900	-	3,000	33,000
Pallid bat	16,411,000	64,000	2,000	6,000	20,000	93,000
Townsend's big-eared bat	14,677,000	62,000	2,000	6,000	20,000	90,000
Plant						
Alkali mariposa-lily	119,000	3,000	40	-	90	3,000
Bakersfield cactus	278,000	700	20	-	40	800
Barstow woolly sunflower	154,000	700	30	-	10	700
Desert cymopterus	205,000	500	-	-	-	500
Little San Bernardino Mountains linanthus	289,000	1,000	60	-	100	1,000
Mojave monkeyflower	161,000	200	10	-	200	300
Mojave tarplant	265,000	300	-	-	200	600

Table IV.7-102
Plan-Wide Impact Analysis for Covered Species Habitat – Alternative 1

Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Owens Valley checkerbloom	147,000	700	-	-	500	1,000
Parish's daisy	188,000	2,000	100	-	400	3,000
Triple-ribbed milk-vetch	8,000	-	-	-	-	-

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
[2] Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Specific Covered Species Impact Analyses

Desert Tortoise

For Agassiz's desert tortoise, desert tortoise important areas were identified that include tortoise conservation areas (TCAs), desert tortoise linkages, and desert tortoise high priority habitat (see desert tortoise BGOs in Appendix C).

Under Alternative 1, DFAs do not occur within TCAs. DFAs abut TCAs only in a small area of the West Mojave – 2 ecoregion subunit (the Desert Tortoise Research Natural Area). Impacts from anticipated transmission development would occur in the Superior Cronese TCA and Chuckwalla TCA under Alternative 1. Under Alternative 1, DFAs overlap desert tortoise linkages in the Pinto – 1 ecoregion subunit in the Ord Rodman to Joshua Tree National Park linkage.

Table IV.7-103 provides an impact analysis for these desert tortoise important areas, organized by desert tortoise Recovery Units: Colorado Desert, Eastern Mojave, and Western Mojave. Within the Colorado Desert Recovery Unit, 0.1% (5,000 acres) of TCAs, linkage habitat, and high priority habitat would be impacted under Alternative 1. Within the Eastern Mojave Recovery Unit, no important areas would be impacted under Alternative 1. Within the Western Mojave Recovery Unit, 0.3% (9,000 acres) of TCAs and linkage habitat would be impacted under Alternative 1.

Table IV.7-103
Plan-Wide Impact Analysis for Desert Tortoise Important Areas – Alternative 1

Recovery Unit	Desert Tortoise Important Area	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Colorado Desert	High Priority Habitat	387,000	-	-	-	40	40
	Linkage	469,000	700	20	-	40	800
	TCA	3,130,000	100	-	-	4,000	4,000
Colorado Desert Total		*3,985,000*	*800*	*20*	-	*4,000*	*5,000*
Eastern Mojave	Linkage	784,000	-	-	-	-	-
	TCA	2,096,000	-	-	-	-	-
Eastern Mojave Total		*2,880,000*	-	-	-	-	-
Western Mojave	Linkage	1,204,000	5,000	*300*	-	1,000	7,000
	TCA	2,313,000	70	-	-	2,000	2,000
Western Mojave Total		*3,517,000*	*5,000*	*300*	-	*3,000*	*9,000*
Total		**10,382,000**	**6,000**	**300**	-	**7,000**	**13,000**

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
[2] Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Approximately 4,143,000 acres of USFWS-designated critical habitat for desert tortoise occurs in the Plan Area (excluding military, Open OHV Areas, and tribal lands). Although the TCAs include desert tortoise critical habitat, these two areas are not entirely the same geographically. Alternative 1 would result in approximately 6,000 acres (approximately 0.1% of the total critical habitat for desert tortoise in the Plan Area) of impact to desert tortoise critical habitat. Approximately 69% (4,000 acres) would occur in the Chuckwalla critical habitat unit and the majority of that impact from transmission impacts. Approximately 1,400 acres of impact, largely from transmission development, would occur in the Superior-Cronese critical habitat unit, and approximately 300 acres of impact would occur in the Ord-Rodman critical habitat unit from transmission development. As described in Volume II, transmission impacts assume resources are impacted within the entire right-of-way width that varies by transmission line voltage. Transmission development does not preclude the

use of the area by tortoise, but does lead to the potential for increased risk of predation or striking by vehicles associated with access roads to support transmission lines.

CMAs would require avoidance of TCAs, except for impacts associated with transmission or impacts in disturbed portions of TCAs. Additionally, the CMAs would prohibit impacts that affect the viability of desert tortoise linkages (AM-DFA-ICS-1 and AM-DFA-ICS-3 through AM-DFA-ICS-15). Compensation CMAs would be required for impacts to desert tortoise important areas.

Flat-tailed Horned Lizard

For flat-tailed horned lizard, flat-tailed horned lizard (FTHL) management areas were identified in the FTHL Rangewide Management Strategy (RMS). The FTHL management areas cover approximately 393,000 acres in the Plan Area (excluding military, Open OHV Areas, and tribal lands) and include the following units: Borrego Badlands, East Mesa, Ocotillo Wells, West Mesa, and Yuha Basin. Approximately 7,000 acres of impact to FTHL management areas would result from Covered Activities under Alternative 1, in the East Mesa, Ocotillo Wells, West Mesa, and Yuha Basin units. Avoidance and minimization CMAs (AM-DFA-ICS-16 and AM-PW-1 through 17) would avoid and minimize impacts to flat-tailed horned lizard. Compensation CMAs would offset habitat loss for flat-tailed horned lizard.

Bendire's Thrasher

Bendire's thrasher habitat occurs in scattered locations across the Mojave and Sonoran/Colorado deserts of the Plan Area. As shown in Table IV.7-102, approximately 10,000 acres of impacts to habitat for Bendire's thrasher would occur under Alternative 1. Avoidance and minimization CMAs (AM-DFA-ICS-17 and AM-PW-1 through 17) would avoid and minimize impacts to Bendire's thrasher. Compensation CMAs would offset habitat loss for Bendire's thrasher.

California Condor

California condor nesting has not been documented in the Plan Area and condor use of the Plan Area is limited to foraging and temporary roosting. As shown in Table IV.7-102, approximately 14,000 acres of impacts to potential foraging and temporary roosting habitat for California condor would occur throughout the Plan Area. As specified in AM-DFA-ICS-18, take of California condor will be avoided by Covered Activities. Additionally, the other condor CMAs (AM-DFA-ICS-19 through 25) and the Plan-wide avoidance and minimization CMAs (AM-PW-1 through 17) would further avoid and minimize impacts to California condor. Compensation CMAs would offset foraging and temporary roosting habitat loss for California condor.

Golden Eagle

In addition to the analysis of impacts to nesting and foraging habitat summarized in Table IV.7-102, a territory-based analysis was conducted for golden eagle (see methods and results in in the Chapter IV.7 portion of Appendix R2). Using the golden eagle nest database, golden eagle territories were identified and individually buffered by 1 mile (representing breeding areas around known nests) and 4 miles (representing use areas around known nests). From the 420 nest locations known from the Plan Area, a total of 161 territories were identified in available lands of the Plan Area. Under Alternative 1, 29 territories have DFAs or transmission corridors within 1 mile of a nest. Implementation of the CMAs for golden eagles (AM-DFA-ICS-2) would prohibit siting or construction of Covered Activities within 1 mile of an active golden eagle nest; therefore, impacts within 1 mile of these golden eagle territories would be avoided. Under Alternative 1, 63 territories have DFAs or transmission corridors within 4 miles of nest, and the use area of these territories could be impacted through harassment, increased risk of striking hazards, and reduced foraging opportunities by Covered Activities depending of the siting of specific projects. The CMAs for golden eagles (Section II.3.1.2.5) and the approach to golden eagles (see Appendix H) describes how the impact to golden eagles would be avoided, minimized, and compensated. Based on the 2013 analysis, no more than 15 golden eagles per year in 2014 would be allowed to be taken within the Plan Area, which would be reassessed annually.

Desert Bighorn Sheep

For desert bighorn sheep, bighorn sheep mountain habitat and intermountain (linkage) habitat have been identified in the Plan Area. Under Alternative 1, approximately 7,000 acres of mountain habitat and 4,000 acres of intermountain habitat would be impacted. A majority of these impacts would occur in the Pinto Lucerne Valley and Eastern Slopes ecoregion subarea in the Lucerne Valley area. Alternative 1 identified DFAs that largely avoid impacts to bighorn sheep mountain and intermountain habitat; however, impacts would occur in the Pinto Lucerne Valley and Eastern Slopes subarea. Avoidance, minimization, and compensation CMAs have been developed to offset the loss of habitat for bighorn sheep.

Although the Peninsular bighorn sheep Distinct Population Segment (DPS) is not a Covered Species, approximately 47,000 acres of USFWS-designated critical habitat for the Peninsular bighorn sheep DPS occurs in the Plan Area (excluding military, Open OHV Areas, and tribal lands). These critical habitat units include Carrizo Canyon and South Santa Rosa Mountain. Alternative 1 would not result in any impacts to critical habitat for the Peninsular bighorn sheep DPS.

Mohave Ground Squirrel

Mohave ground squirrel important areas were identified that include key population centers, linkages, expansion areas, and climate change extension areas (see Mohave ground squirrel BGOs in Appendix C).

Under Alternative 1, impacts to key population centers for Mohave ground squirrel would occur primarily in the Owens – 1 ecoregion subareas west of China Lake. Impacts to Mohave ground squirrel linkages under Alternative 1 would occur primarily in the Owens – 1 ecoregion subunits west of China Lake. Impacts to Mohave ground squirrel expansion areas and climate change extension areas would occur in the Owens – 1 ecoregion subunits west of China Lake.

Table IV.7-104 provides an impact analysis for these Mohave ground squirrel important areas. A total of approximately 9,000 acres of impact to linkages, expansion areas, and climate change extension areas would occur under Alternative 1. The CMAs would prohibit impacts that affect the viability of linkages. Compensation CMAs would be required for impacts to Mohave ground squirrel, including Mohave ground squirrel important areas.

Table IV.7-104
Plan-Wide Impact Analysis for Mohave Ground Squirrel Important Areas – Alternative 1

Mohave Ground Squirrel Important Area Type	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Key Population Center	507,000	500	-	-	1,000	1,000
Linkage	386,000	2,000	-	-	700	3,000
Expansion Area	552,000	2,000	10	-	300	2,000
Climate Change Extension	224,000	2,000	-	-	800	2,000
Total	**1,669,000**	**6,000**	**10**	**-**	**3,000**	**9,000**

1 Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
2 Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Dune Covered Species[1]

Dune Covered Species include Mojave fringe-toed lizard. Although Table IV.7-102 shows impacts to Mojave fringe-toed lizard, impacts to the primary habitat areas used by these species would be avoided through the CMAs that require avoidance of and setbacks from dunes (AM-DFA-DUNE-1 through 3). Additionally, the Plan-wide and landscape-level avoidance and minimization CMAs (AM-PW-1 through 17 and AM-LL-3) would further avoid and minimize impacts to dune Covered Species. Compensation CMAs would offset habitat loss for dune Covered Species.

Riparian and Wetland Covered Species[2]

Covered Species associated with riparian and wetland habitats include Tehachapi slender salamander, California black rail, Gila woodpecker, least Bell's vireo, southwestern willow flycatcher, tricolored blackbird, western yellow-billed cuckoo, Yuma clapper rail, Mohave tui chub, Owens pupfish, and Owens tui chub. Although Table IV.7-102 shows impacts to suitable habitat for some of these riparian and wetland Covered Species, impacts to the primary habitat areas used by these species would be avoided through the CMAs that require avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1 through 9). Additionally, the Plan-wide and landscape-level avoidance and minimization CMAs (AM-PW-1 through 17 and AM-LL-2) would further avoid and minimize impacts to riparian and wetland Covered Species. Compensation CMAs would offset habitat loss for these species.

Approximately 6,000 acres of USFWS-designated critical habitat for southwestern willow flycatcher occurs in the Plan Area (excluding military, Open OHV Areas, and tribal lands). These critical habitat units include Amargosa River, Mojave River, and Willow Creek. Alternative 1 would not result in any impacts to critical habitat for southwestern willow flycatcher.

Approximately 800 acres of USFWS-designated critical habitat for desert pupfish occurs in the Plan Area (excluding military, Open OHV Areas, and tribal lands). These critical habitat units include Carrizo Wash, Fish Creek Wash, and San Felipe Creek. Alternative 1 would not result in any impacts to critical habitat for desert pupfish.

The USFWS proposed to designate yellow-billed cuckoo critical habitat on August 15, 2014 at the time the DRECP Draft EIR/EIS was going to print. As such, the proposed yellow-billed

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1 Flat-tailed horned lizard and plant Covered Species are also known to be associated with dunes but these species are addressed separately.

2 Some of the riparian and wetland Covered Species discussed here also use other non-wetland and non-riparian natural communities.

cuckoo critical habitat was not addressed in the Draft EIR/EIS, but will be addressed in the Final EIR/EIS.

Covered Species associated with Agricultural Lands[3]

Covered Species associated with agricultural lands include burrowing owl, greater sandhill crane, mountain plover, Swainson's hawk, and desert pupfish. As shown in Table IV.7-102, impacts to Covered Species associated with agricultural lands would occur primarily in the Imperial Valley, Palo Verde Valley, and Antelope Valley. Specific surveys, setbacks, and other CMAs have been developed to avoid and minimize impacts of Covered Activities on these species (AM-DFA-AG-1 through 7). Compensation CMAs would offset habitat loss for these species.

Bat Covered Species

Bat Covered Species include California leaf-nosed bat, pallid bat, and Townsend's big-eared bat. As shown in Table IV.7-102, impacts to suitable habitat for bat Covered Species would occur throughout the Plan Area; however, impacts to roost sites and areas around roost sites would be avoided and minimized through the CMAs specific to bat species (AM-DFA-BAT-1). Additionally, the Plan-wide avoidance and minimization CMAs (AM-PW-1 through 17) would further avoid and minimize impacts to bat Covered Species. Compensation CMAs would offset habitat loss for these species.

Plant Covered Species

Plant Covered Species include alkali mariposa-lily, Bakersfield cactus, Barstow woolly sunflower, desert cymopterus, Little San Bernardino Mountains linanthus, Mojave monkeyflower, Mojave tarplant, Owens Valley checkerbloom, Parish's daisy, and triple-ribbed milk-vetch. As shown in Table IV.7-102, Alternative 1 would result in impact to suitable habitat for these species; however, the CMAs require surveys for plant Covered Species for all Covered Activities, and the CMAs requiring avoidance of and setbacks from occupied habitat (AM-DFA-PLANT-1 through AM-DFA-PLANT-3) would avoid the direct loss of habitat occupied by these species. Compensation CMAs would offset habitat loss for the plant Covered Species.

Approximately 2,000 acres of USFWS-designated critical habitat for Parish's daisy occurs in the Plan Area (excluding military, Open OHV Areas, and tribal lands). The critical habitat

[3] Some of the Covered Species discussed here as associated with agricultural lands also use non-agricultural lands.

unit is the Northeast Slope. Alternative 1 would not result in any impacts to critical habitat for Parish's Daisy.

To avoid and minimize the potential loss of Covered Species from Covered Activities, a range of species-specific CMAs have been developed and are highlighted below:

- CMAs require habitat assessments for all Covered Activities and pre-construction surveys for Tehachapi slender salamander, Mojave fringe-toed lizard, desert tortoise, flat-tailed horned lizard, riparian and wetland bird Covered Species, burrowing owl, greater sandhill crane, Swainson's hawk, Bendire's thrasher, golden eagle, desert kit fox, Mohave ground squirrel, bat Covered Species, and plant Covered Species (see Section II.3.1.2.5.4 and Section II.3.1.2.5.5).
- Setbacks from individual species would be required from active nests of Bendire's thrasher, California condor, Gila woodpecker, and golden eagle.
- Covered Activities and other development in areas that potentially affect the amount of sand entering or transported within Aeolian transport corridors will be designed and operated to minimize mortality to Covered Species (AM-LL-3).
- In addition, a bird and bat use and mortality monitoring program will be implemented during operations using current protocols and best procedures available at time of monitoring. Covered Activities that are likely to impact bird and bat Covered Species during operation will develop and implement a project-specific Bird and Bat Operational Strategy (BBOS) that meets the approval of the appropriate DRECP Coordination Group (AM-LL-4).
- Covered Activities will include appropriate design features using the most current information from the Flat-tailed Horned Lizard Rangewide Management Strategy (RMS) and RMS Interagency Coordinating Committee (ICC) to reduce mortality (AM-DFA-ICS-15).
- If Bendire's thrasher is present, CMAs require biological monitoring to ensure that individuals are not directly affected by operations (i.e., mortality or injury, direct impacts on nest, eggs, or fledglings).
- For Covered Activities where ongoing take of eagles is anticipated, and take of eagles will be authorized under DRECP, federal regulations require that any authorized take must be unavoidable after the implementation of advanced conservation practices (ACPs) (AM-DFA-ICS-29). ACPs are "scientifically supportable measures" approved by the USFWS and represent the best available techniques to reduce eagle disturbance and ongoing mortalities to a level where remaining take is unavoidable" (50 CFR 22.3).

- CMAs also require monitoring and enforcement of vehicular restrictions and travel off designated routes to prevent mortality to Covered Species associated with dunes (AM-RES-BLM-DUNE-2).

Indirect and Terrestrial Operational Impact Analysis

Siting, construction, and operational Covered Activities could result in the potential disturbance, injury, and mortality of listed and sensitive wildlife from noise, predator avoidance behavior, as well as light and glare. The degree to which these factors contribute to the disturbance of sensitive wildlife corresponds to the distribution of Covered Activities in the Plan Area that would result in noise, predator avoidance behavior, or light and glare. As described in Section IV.7.2.1, the extent of some of these effects may exist at or beyond the source of these effects, the project footprint, or the project area depending on the type of effect and other environmental considerations. As such, the adverse effects caused by these factors would correspond to the overlap between the location of sensitive wildlife, represented by the Covered Species models, and the likely distribution of Covered Activities across subareas.

Based on the planned renewable energy generation and transmission under Alternative 1 (a total of 182,000 acres of impact), the creation of noise, predator avoidance behavior, as well as light and glare would collectively result in the terrestrial operational impacts shown in Table IV.7-101. These impacts would mostly occur in the Imperial Borrego Valley and West Mojave and Eastern Slopes subareas. The Cadiz Valley and Chocolate Mountains, and the Pinto Lucerne Valley and Eastern Slopes subareas would also contain prevalent amounts of terrestrial operational impacts in the Plan Area. As a result, these subareas would have the greatest potential to create noise, predator avoidance behavior, and light and glare resulting in disturbance of sensitive wildlife.

Noise

Noise caused by mechanical equipment, vehicle usage, and human activities during siting, construction, and operations can cause physical damage such as hearing loss as well as behavioral changes in habitat use, activity patterns, reproduction, and foraging. Birds during the nesting seasons are expected to be particularly sensitive to noise effects from the siting, construction, and operation of renewable energy facilities. For bird Covered Species the Imperial Borrego Valley and West Mojave and Eastern Slopes are the subareas primarily affected. Smaller mammals, such as the Mohave ground squirrel, and reptiles, such the Mojave fringe-toed lizard and flat-tailed horned lizard, could be adversely affected by intense noise (and related vibration that could collapse burrows), and potentially subject to increased predation if noise affects their ability to detect predators. Effects on the habitat for these Covered Species mostly occurs in the West

Mojave and Eastern Slopes and Imperial Borrego Valley subareas and to a lesser extent in the Pinto Lucerne Valley and Eastern Slopes subarea. As such, the disturbance of wildlife from noise would predominantly occur in the West Mojave and Eastern Slopes subarea and to a lesser extent in the Imperial Borrego Valley as well as the Pinto Lucerne Valley and Eastern Slopes subareas.

The disturbance and injury of wildlife from noise-related effects would also be reduce through the implementation of avoidance and minimization CMAs under Alternative 1. The CMA AM-PW-13 would minimize noise generated from Covered Activities using standard practices throughout the entire Plan Area. Additionally, various CMAs that would avoid and setback Covered Activities from noise-sensitive wildlife including seasonal setbacks for nesting birds; setbacks from riparian and wetland habitat benefitting bids, amphibians, and small mammals; and avoidance of Mohave ground squirrel's during operations (AM-DFA-RIPWET-1, AM-DFA-RIPWET-5, and AM-DFA-ICS-36). Therefore, potential disturbance of wildlife from noise during siting, construction, and operations would be minimized by these measures.

Predator Avoidance Behavior

Predator avoidance behavior can occur in some wildlife in response to human activities during operation and maintenance. Predator avoidance behavior can lead to increased physiological stress, reduced suitable foraging habitat, and can affect reproduction. Different wildlife species may have varying sensitivities to predator avoidance behavior and may experiences different magnitudes of responses to Covered Activities. Desert bighorn sheep use visual cues to assess and escape predators and may not utilize foraging habitat or water sources in proximity to Covered Activities. Other species that may experience behavioral changes that reduce foraging opportunities or lead to avoidance of suitable foraging habitat including nesting bird species. These wildlife species are spread throughout the Plan Area; however, the greatest amount of terrestrial operational impacts would be located in the Imperial Borrego Valley and West Mojave and Eastern Slopes subareas. The Cadiz Valley and Chocolate Mountains as well as the Pinto Lucerne Valley and Eastern Slopes would also experience fewer terrestrial operational impacts, and thus less potential predator avoidance behavior than that expected for the Imperial Borrego Valley and West Mojave and Eastern Slopes subareas.

Under Alternative 1, avoidance and minimization CMAs for siting Covered Activities away from sensitive wildlife habitat would be implemented for riparian and wetland habitat, wildlife species that inhabit agricultural lands, and for particular species such as the Mohave ground squirrel (AM-DFA-RIPWET-1, AM-DFA-RIPWET-5, AM-DFA-AG-2, and AM-DFA-ICS-36). Additional CMAs would inform workers of actions that could potentially induce predator avoidance behavior and restrict activities that could disturb wildlife and

their access to water and foraging habitat (AM-PW-5, AM-PW-13, AM-RES-RL-DUNE-2, AM-DFA-ICS-31, and AM-RES-RL-ICS-14). The potential disturbance of wildlife from predator avoidance behavior caused by siting, construction, and operational Covered Activities would be minimized by these measures.

Light and Glare

Light and glare are created by Covered Activity development which involves both light for security and to avoid aviation collisions and glare from reflective surfaces. Exposure of wildlife to light and glare can alter wildlife behavior including foraging, migration, and breeding. Solar projects would produce increased levels of glare due to the large amount of reflective panel or heliostat surfaces and would have greater effects on wildlife than other renewable energy technologies. Potential adverse effects associated with light and glare from solar projects, including solar flux and bird collisions from the lake effect are analyzed in BR-9. As described above, based on the planned renewable energy generation and transmission under Alternative 1, terrestrial operational impacts would mostly occur in the Imperial Borrego Valley and West Mojave and Eastern Slopes subareas and to a lesser extent in the Pinto Lucerne Valley and Eastern Slopes as well as the Cadiz Valley and Chocolate Mountains subareas. Similarly, impacts from solar projects throughout the Plan Area would primarily occur in the Imperial Borrego Valley and West Mojave and Eastern Slopes subareas and to a lesser extent in the Pinto Lucerne Valley and Eastern Slopes as well as the Cadiz Valley and Chocolate Mountain subareas.

Lighting can act through various biological mechanisms and can result in greatly different adverse effects to individual species. Diurnal predators, such as bats and insectivorous birds may exploit night lighting that increases prey detectability, while nocturnal prey species may reduce their foraging activity in lighted areas. Impacts to habitat for bats from Covered Activities would mainly be located in the Imperial Borrego Valley as well as the Cadiz Valley and Chocolate Mountains subareas, and to a lesser extent in the Pinto Lucerne Valley and Eastern Slopes subarea. Migratory birds that fly during the night may also be affected by aviation safety lighting on high structures such as met towers and turbines. For bird Covered Species the Imperial Borrego Valley and West Mojave and Eastern Slopes are the subareas primarily affected, containing most of the total Plan-wide impacts to bird Covered Species habitat. Therefore, considering the distribution of potential renewable energy development and impacts on modeled habitat for species sensitive from light and glare the largest magnitude of wildlife disturbance is expected to occur in the West Mojave and Eastern Slopes, Imperial Borrego Valley, and Cadiz Valley and Chocolate Mountains subareas.

Alternative 1 would implement avoidance and minimization CMAs specifically intended to reduce effects of lighting and glare including AM-PW-14, which would implement standard

practices for shielding and reducing the use of lights, as well as AM-DFA-RIPWET-4, which specifically restricts lighting within one mile of riparian or wetland vegetation. Furthermore, the appropriate siting and design of Covered Activities away from sensitive wildlife habitat would reduce disturbance from lighting and glare. Under Alternative 1, avoidance and minimization CMAs for siting Covered Activities away from wildlife that would be sensitive to the adverse effects of lighting and glare would be implemented for riparian and wetland habitat, wildlife species that inhabit agricultural lands, and for smaller mammals (AM-DFA-RIPWET-1, AM-DFA-RIPWET-5, and AM-DFA-AG-2). These measures would minimize potential disturbance of wildlife from lighting and glare.

Non-Covered Species Impact Analysis

Table IV.7-105 provides an estimation of the impacts to natural communities associated with Non-Covered Species. While estimation of impacts to natural communities likely overestimates the potential impacts to Non-Covered Species habitats, it provides a general range of level of impact.

Impacts to the dune community, riparian communities, arid west freshwater emergent marsh, and Californian warm temperate marsh/seep would be avoided through implementation of CMAs, so impacts to potential habitat for each of these species is likely greater than would actually occur. For some species, impacts would be minimized through avoidance of the specific natural communities required for those species, e.g., dune-, spring-, or cave-restricted invertebrates, or riparian-obligate bird or amphibian species. The total potential impact to natural communities and habitat across all technology types before application of CMAs is less than 1%, with the exception of grasslands at approximately 2.7% and agricultural/rural land cover at approximately 9% (see Table IV.7-105).

The results of impacts on Non-Covered Species from the creation of noise, predator avoidance behavior, and light and glare would be similar to those described for the Covered Species.

Table IV.7-50 (in Section IV.7.3.2.1) provides a cross-reference of natural communities shared between primary Covered and Non-Covered Species. There are a number of species-specific CMA's for Covered Species and natural communities that would be expected to also minimize and avoid impacts to the Non-Covered Species that may co-occur, e.g., the Non-Covered yellow-breasted chat often occurs within the same riparian habitat as the covered southwestern willow flycatcher. Therefore, conservation measures implemented for southwestern willow flycatcher would often benefit the yellow-breasted chat. Although the modeled habitat for the Covered Species does not always directly overlap the range of Non-Covered Species requiring similar habitat, this method provides a general additional guide for determining impacts and accounting for conservation measures.

USFWS-designated critical habitat occurs within the Plan Area (excluding military, Open OHV Areas, and tribal lands) for the following Non-Covered Species:

- Approximately 1,000 acres for Amargosa nitrophila
- Approximately 4,000 acres for the Amargosa vole
- Approximately 4,000 acres for the Arroyo Toad
- Approximately 300 acres for the Ash Meadows gumplant
- Approximately 600 acres for the Cushenbury buckwheat
- Approximately 1,000 acres for the Cushenbury milk-vetch
- Approximately 100 acres for the Cushenbury oxytheca
- Approximately 14,000 acres for the Lane Mountain milk-vetch
- Approximately 3,400 acres for the Pierson's milk-vetch
- Approximately 47,000 acres for the Peninsular bighorn sheep

Under the Alternative 1 impacts to approximately 70 acres of Lane Mountain milk-vetch critical habitat would have the potential to occur from transmission. This calculation of impacts from transmission is derived from the transmission corridors overlapped with designated critical habitat, thus resulting is an overestimation of actual ground disturbance.

The results of impacts on Non-Covered Species from the creation of noise, predator avoidance behavior, and light and glare would be similar to those described for the Covered Species.

Impact BR-5: Siting, construction, decommissioning, and operational activities could result in loss of nesting birds (violation of the federal Migratory Bird Treaty Act and California Fish and Game Code Sections 3503, 3503.5, 3511, and 3513).

Siting, construction, decommissioning, and operations of renewable energy and transmission projects would result in the removal of vegetation and other nesting habitat and cause increased human presence and noise that has the potential to cause the loss of nesting birds, which would be a violation of the federal Migratory Bird Treaty Act and the California Fish and Game Code. The potential loss of nesting birds resulting from these activities would be adverse without application of CMAs. Avoidance and minimization CMAs (AM-PW-4, 13, 14; AM-DFA-RIPWET-1, 3, 5; AM-DFA-AG-1 through 6; AM-DFA-ICS CMAs for bird species) include the season restrictions, survey requirements, and setbacks necessary to avoid and minimize the loss of nesting birds.

Impact BR-6: Siting, construction, decommissioning, and operational activities would adversely affect habitat linkages and wildlife movement corridors, the movement of fish, and native wildlife nursery sites.

The following provides an analysis of the impacts of the development of Covered Activities on habitat linkages and wildlife movement in the Plan Area. Species-specific habitat linkages and wildlife movement areas are a component of analysis conducted under Impact BR-4 above. Suitable habitat for each species includes areas of habitat linkages and wildlife movement. Analysis under BR-4 specifically incorporates habitat linkage information for desert tortoise, Mohave ground squirrel, and desert bighorn sheep. In addition to the species-specific analysis of impacts to suitable habitat supporting habitat linkages and wildlife movement for species, landscape level information on habitat linkages (i.e., Desert Linkage Network) and migratory bird movement are analyzed below.

Table IV.7-105
Plan-Wide Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 1

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
California forest and woodland/ Desert conifer woodlands	Coast horned lizard, grey vireo, loggerhead shrike, yellow warbler, American badger, bighorn sheep, fringed myotis, hoary bat, long-eared myotis, pocketed free-tailed bat, spotted bat, Tehachapi pocket mouse, western mastiff bat, western small-footed myotis, Amargosa beardtongue, Charlotte's phacelia, creamy blazing star, Cushenbury buckwheat, Cushenbury milk-vetch, Cushenbury oxytheca, Kern buckwheat, Piute Mountains jewel-flower, purple-nerve cymopterus, San Bernardino Mountains dudleya, short-joint beavertail cactus, Spanish needle onion, Tracy's eriastrum, Cushenbury buckwheat	437,000	800	40	0	250	1,090	0.2%
Desert Scrub/ Chaparral Communities	Arroyo toad, banded gila monster, Coast horned lizard, Colorado Desert fringe-toed lizard, Couch's spadefoot, rosy boa, bald eagle, bank swallow, Crissal thrasher, Ferruginous hawk, gilded flicker, grey vireo, Le Conte's thrasher, loggerhead shrike, long-eared owl, Lucy's warbler, northern harrier, yellow warbler, American badger, Arizona myotis, big free-tailed bat, bighorn sheep, cave myotis, fringed myotis, hoary bat, long-eared myotis, Palm Springs pocket mouse, pocketed free-tailed bat,	12,938,000	62,000	2,000	5,000	17,000	86,000	0.7%

Table IV.7-105
Plan-Wide Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 1

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	spotted bat, Tehachapi pocket mouse, western mastiff bat, western small-footed myotis, western yellow bat, yellow-eared pocket mouse, Yuma myotis, Algodones Dunes sunflower, Ash Meadows gum plant, Amargosa beardtongue, bare- stem larkspur, Charlotte's phacelia, Cima milk-vetch, Coachella Valley milk-vetch, creamy blazing star, Cushenbury buckwheat, Cushenbury milk-vetch, Cushenbury oxytheca, desert pincushion, Emory's crucifixion-thorn, flat-seeded spurge, forked buckwheat, Harwood's eriastrum, Harwood's milkvetch, Inyo County star-tulip, Kelso Creek monkeyflower, Kern buckwheat, Las Animas colubrina, Lane Mountain Milk-Vetch, Mojave Desert plum, Mojave milkweed, Munz's Cholla, nine-awned pappus grass, Orcutt's woody aster, Orocopia sage, Parish's club cholla, Pierson's milk-vetch, pink fairy-duster, Piute Mountains jewel-flower, purple-nerve cymopterus, Red Rock poppy, Red Rock tarplant, Robinson's monardella, Rusby's desert-mallow, sand food, Sodaville milk-vetch, short-joint beavertail cactus, Spanish needle onion, Thorne's							

Table IV.7-105
Plan-Wide Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 1

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	buckwheat, Tracy's eriastrum, Utah beardtongue, white bear poppy, White-margined beardstongue, Wiggin's croton, Flat-seeded spurge, Parish's phacelia, Parish's alkali grass							
Dunes[3]/ Desert Outcrop and Badlands	Banded gila monster, barefoot gecko, Coast horned lizard, Colorado Desert fringe-toed lizard, Couch's spadefoot, rosy boa, bald eagle, bank swallow, Le Conte's thrasher, loggerhead shrike, long-eared owl, northern harrier, Amargosa vole, big free-tailed bat, bighorn sheep, cave myotis, bat, spotted bat, western mastiff bat, Yuma myotis, Algodones Dunes sunflower, Ash Meadows gum plant, Amargosa beardtongue, Amargosa niterwort, Charlotte's phacelia, Cima milk-vetch, Coachella Valley milk-vetch, creamy blazing star, desert pincushion, Emory's crucifixion-thorn, flat-seeded spurge, forked buckwheat, Harwood's eriastrum, Harwood's milkvetch, Inyo County star-tulip, Las Animas colubrina, Mojave Desert plum, Mojave milkweed, nine-awned pappus grass, Orcutt's woody aster, Orocopia sage, Palmer's jackass clover, Parish's club cholla, Pierson's milk-vetch,	1,895,000	2,000	10	300	2,000	4,400	0.2%

Table IV.7-105
Plan-Wide Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 1

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	pink fairy-duster, purple-nerve cymopterus, Red Rock poppy, Red Rock tarplant, Robinson's monardella, Rusby's desert-mallow, sand food, Spanish needle onion, Thorne's buckwheat, Utah beardtongue, white bear poppy, Wiggin's croton, Palmer's jackass clover, white-margined beardtongue, flat-seeded spurge							
Grassland	Coast horned lizard, American peregrine falcon, bank swallow, Ferruginous hawk, long-eared owl, northern harrier, white-tailed kite, Amargosa vole, American badger, spotted bat, Cushenbury milk-vetch, Cushenbury oxytheca, short-joint beavertail cactus	238,000	6,000	100	0	400	6,500	2.7%
Riparian/ Wetlands	Arroyo toad, California red-legged frog, Coast horned lizard, Couch's spadefoot, Western pond turtle, American peregrine falcon, Arizona Bell's vireo, bald eagle, bank swallow, Crissal thrasher, gilded flicker, elf owl, Inyo California towhee, loggerhead shrike, long-eared owl, Lucy's warbler, northern harrier, redhead, vermillion flycatcher, white-tailed kite, yellow-breasted chat, yellow-headed blackbird, yellow warbler, Amargosa vole, Mojave River vole, Arizona myotis, cave myotis,	1,652,000	2,000	50	0	500	2,550	0.2%

Table IV.7-105
Plan-Wide Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 1

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	fringed myotis, hoary bat, long-eared myotispocketed free-tailed bat, spotted bat, western mastiff bat, western yellow bat, Yuma myotis, Ash Meadows gum plant, Inyo County star-tulip, Parish's alkali grass, Parish's phacelia, Amargosa pupfish, Amargosa speckled dace, Amargosa spring snails							
Agriculture/ Rural Land Cover	American peregrine falcon, Bank swallow, loggerhead shrike, long-eared owl, northern harrier, redhead, yellow-headed blackbird, yellow warbler, Arizona myotis, hoary bat, Tehachapi pocket mouse, western mastiff bat, western yellow bat	825,000	52,000	200	9,000	10,000	71,200	8.6%

1 Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

2 Solar impacts include ground-mounted distributed generation.

3 Impacts to the dune community, riparian communities, arid west freshwater emergent marsh, and Californian warm temperate marsh/seep would be avoided through implementation of CMAs. Only impacts determined to be unavoidable would occur in these natural communities.

4 This amount assumes the loss of conservation value for all land fragmented by the well fields.

Notes: The natural community classification system is described in Chapter III.7 and follows CDFG 2012. Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Desert Linkage Network

The desert linkage network is a comprehensive and detailed habitat connectivity analysis for the California deserts identified "swaths" of habitat of uniform physical conditions that will interact with uncertain climate changes to maintain habitat for species and species' movement (Penrod et al. 2012, as cited in Appendix Q). Figures III.7-26 through III.7-36 in Chapter III.7 of Volume III shows the desert linkage network for the Plan Area and in each ecoregion subarea.

Table IV.7-106 shows the impact analysis for the desert linkage network for Alternative 1. Overall, over 18,000 acres of desert linkage network could be adversely impacted in DFAs and transmission corridors in six different subareas.

In the Cadiz Valley and Chocolate Mountains subarea, DFAs are located in the portion of the desert linkage network that connects the Colorado River to the northern part of the McCoy Mountains. There are also DFAs in the Chuckwalla Valley in the linkage that connects the Palo Verde Mountains to the McCoy Mountains. Numerous generally north-south habitat linkages cross the I-10 corridor area between Desert Center and Blythe in this subarea; DFAs under Alternative 1 largely avoid these habitat linkages and the development of Covered Activities in these DFAs would not likely result in adverse impacts to general terrestrial wildlife movement.

In the Imperial Borrego Valley, there are DFAs in the northern portion of the desert linkage network that extends along East Mesa from east of the Imperial Valley north toward the Coachella Canal. DFAs are not located in the desert linkage network corridors elsewhere in the Imperial Borrego Valley subarea. General terrestrial wildlife movement may be affected locally by the development of Covered Activities in these DFAs; however, the siting of DFAs, the reserve design, and the CMAs related to wildlife movement and Covered Species would offset the impacts on general terrestrial wildlife movement.

In the Mojave and Silurian Valley, there are DFAs in the Mojave Valley in a linkage that connects the area around Barstow to the Calico Mountains and east along and south of the Mojave River. In the Owens River Valley, there are DFAs in the desert linkage network that connects the Haiwee Reservoir to Indian Wells. General terrestrial wildlife movement may be affected locally by the development of Covered Activities in these DFAs; however, the siting of DFAs, the reserve design, and the CMAs related to wildlife movement and Covered Species would offset the impacts on general terrestrial wildlife movement.

In the Pinto Lucerne Valley and Eastern Slopes subarea, there are DFAs in the desert linkage network that connects the Grapevine Canyon Recreation Lands to the Granite Mountains and the Lucerne Valley in Lucerne Valley; however, no DFAs are located in the

habitat linkage between the Ord Mountains and the Granite Mountains across the Highway 18 east of Apple Valley. There are also DFAs in the linkage that connects Black Mountain to the Mojave River. DFAs under Alternative 1 are sited to avoid and minimize impacts to wildlife movement in this subarea by maintaining movement corridors between the San Bernardino Mountains and the Mojave Desert, including in the Ord Mountains to Granite Mountains linkage area and in the Bighorn Mountain area that connects to Johnson Valley and the Morongo Basin. General terrestrial wildlife movement may be affected locally by the development of Covered Activities in these DFAs; however, the siting of DFAs, the reserve design, and the CMAs related to wildlife movement and Covered Species would offset the impacts on general terrestrial wildlife movement.

In the West Mojave and Eastern Slopes subarea, there are DFAs in the linkage that connects the area around Baldy Mesa along the southern edge of the Plan Area to Helendale; however, in this area, DFAs under this alternative are sited to avoid the habitat linkage along the Mojave River and the habitat linkage east of Saddleback Buttes along the Los Angeles and San Bernardino county line. In the Fremont Valley area around California City, DFAs are located in linkages between Edwards Air Force Base the Tehachapi Mountains that could adversely affect wildlife movement; however, an east-west corridor was maintained without DFAs north of California City across Fremont Valley and DFAs are not sited in the entire Antelope Valley west of Edwards Air Force Base under Alternative 1. General terrestrial wildlife movement may be affected locally by the development of Covered Activities in these DFAs; however, the siting of DFAs, the reserve design, and the CMAs related to wildlife movement and Covered Species would offset the impacts on general terrestrial wildlife movement.

The DRECP Plan-Wide Reserve Design Envelope for Alternative 1 was developed, in part, to conserve and avoid impacts to habitat linkages and wildlife movement, including the desert linkage network. The conservation analysis for the desert linkage network is provided under the Impacts of the Reserve Design below. To avoid and minimize impacts to the desert linkage network beyond what is estimated in Table IV.7-106, Covered Activities will be sited and designed to maintain the function of wildlife connectivity in the following linkage and connectivity areas: (1) across Interstate 10 centered near Wiley's Well Road to connect the Mule and McCoy mountains, (2) across Interstate 10 to connect the Chuckwalla and Palen mountains, (3) across Interstate 10 to connect the Chuckwalla Mountains to the Chuckwalla Valley east of Desert Center, and (4) the confluence of Milpitas Wash and Colorado River floodplain. In addition, the Riparian and Wetland Natural Communities and Covered Species CMAs will contribute to maintaining and promoting habitat connectivity and wildlife movement.

Table IV.7-106
Plan-Wide Impact Analysis for the Desert Linkage Network – Alternative 1

Desert Linkage Network by Ecoregion Subarea	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Cadiz Valley and Chocolate Mountains	890,000	2,000	30		4,000	6,000
Imperial Borrego Valley	156,000	200		80	80	300
Kingston and Funeral Mountains	174,000	-				-
Mojave and Silurian Valley	507,000	2,000			700	2,000
Owens River Valley	19,000	1,000			500	1,000
Panamint Death Valley	206,000	-				-
Pinto Lucerne Valley and Eastern Slopes	291,000	2,000	100		2,000	4,000
Piute Valley and Sacramento Mountains	152,000	-	-			
Providence and Bullion Mountains	426,000		-			
West Mojave and Eastern Slopes	860,000	5,000	200		300	5,000
Total	**3,682,000**	**21,000**	**4,000**	**900**	**8,000**	**35,000**

1 Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
2 Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Migratory Birds

Migration patterns across the Plan Area are discussed in the typical impacts section (Section IV.7.2.1.3) and quantification of operational impacts to avian and bat species are discussed in BR-9. The following analysis focuses on the anticipated distribution of

different technology types in relation to known migratory corridors and migratory resources in each subarea.

In the Alternative 1, wind generation is a very small proportion of the overall generation mix, and is divided between the West Mojave and Eastern Slopes, Pinto Lucerne Valley and Eastern Slopes, and Cadiz and Chocolate Mountain ecoregion subareas. Wind development would mostly occur on the eastern slopes of the Tehachapi Mountains and in the mountainous areas around Lucerne Valley. Key bird migration areas affected would include routes between the Tehachapi and San Bernardino passes, and the dry lakes and wetland refuges on and to the north of Edwards AFB, including the North Mojave dry lakes of China Lake, Koehn Lake, Harper Lake and Searles Lake. Further, direct loss of habitat in Antelope Valley would lead to loss of habitat for wintering birds, including mountain plover and Swainson's hawk. Small quantities of Wind development would occur in the Cadiz and Chocolate Mountains subarea north of the I-10. These areas are adjacent to the Colorado River migratory corridor, and may affect migratory bird movement to and from the Coachella Valley. No wind development in Imperial Borrego Valley ecoregion subarea is anticipated in the Alternative 1.

Solar development would be expected throughout the West Mojave and Eastern slopes, Pinto Lucerne Valley, Cadiz and Chocolate Mountain and Imperial Borrego Valley subareas. Smaller quantities of development would occur in the Mojave and Silurian Valley, Owens River Valley and Providence and Bullion Mountains subareas. Alternative 1 would result in new solar PV and solar thermal facilities along the I-10 corridor to the west side of the Colorado River, and in agricultural lands west of Blythe. Anticipated development would result in a 3.3-fold increase in solar facilities when compared to baseline. Development would increase hazards on the migratory linkages for birds between the Colorado River, and the Coachella Valley, and would adversely affect both Covered Species and other migratory birds. Similarly, development in the West Mojave and Eastern Slopes subarea would result in a 3.5-fold increase in solar facilities near sensitive migratory areas, such as Antelope Valley and the Tehachapi pass. Further, DFAs in agricultural and disturbed lands east of Barstow, and in the Pinto Lucerne Valley subarea, would result in major increases in solar generation in areas that have not been the focus of development. Impacts are likely to occur in DFAs between the San Bernardino Mountain passes, and dry lakes on Edwards AFB, as well as, the North Mojave dry lakes of China Lake, Koehn Lake, Harper Lake and Searles Lake. Development around the Salton Sea and in the Imperial Valley would be on the southern, western and eastern shores. Impacts from solar development described in BR-4, are likely to result in a 5.6-fold increase in solar facilities when compared to baseline. Development would lead to direct loss of foraging habitat for wintering and resident birds in the agricultural lands south of the Salton Sea, and would create facilities across the

landscape that mimic open water. Such facilities would adversely affect the behavior migratory birds, and would result increased mortality.

Areas most important to migratory waterbirds that are within both geothermal and solar DFAs include the agricultural lands west of Calipatria to the Shoreline of the Salton Sea. Transmission throughout this area is already extensively developed to serve existing geothermal facilities and would likely attract further development. These lands provide foraging for Cattle Egret, White-faced Ibis, Sandhill Crane, Mountain Plover, Whimbrel, Long-billed Curlew throughout winter (Shuford et al 2000). Further, the proximity of these DFAs to the Salton Sea would affect migrating and resident water birds including ducks, geese, pelicans, cormorants, and wading birds that would otherwise be minimally affected development. In particular grebes are known to be attracted to both the reflective surfaces of solar PV facilities and the evaporation ponds used by some geothermal and solar facilities.

Application of CMAs would require projects to be sited and designed to avoid impacts to occupied and suitable habitat for Covered Species, to the maximum extent feasible. Further, siting and construction CMAs require setbacks from riparian and wetland habitats which would minimize direct loss of important migratory bird habitat. Compensation CMAs would offset habitat loss for Covered Species. A bird and bat use and mortality monitoring program would be implemented during operations. Any proposed projects that are likely to impact bird and bat Covered Species during operation would develop and implement a project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meets the approval of the appropriate DRECP Coordination Group. The goal of the project-specific Bird and Bat Covered Species Operational Actions would be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar and geothermal projects. The compensation requirements in Bird and Bat Covered Species Operational Actions would be based on ongoing/annual fees and the biological basis for the fee would be determined by the mortality effects as annually measured and monitored according to the Bird and Bat Covered Species Operational Actions. In combination, the application of siting, monitoring, operational and compensation CMAs would minimize impacts to migratory birds. Application of CMAs would reduce the overall impacts to migratory bird populations.

Impact BR-7: Siting, construction, decommissioning, and operational activities would result in habitat fragmentation and isolation of populations of listed and sensitive plants and wildlife.

The siting, construction, decommissioning, and operation of renewable energy and transmission projects can have the potential to fragment intact and interconnected landscapes resulting in isolated patches of habitat, isolated species populations, reduced gene flow, and remaining habitat that is more exposed to the edge effects of adjacent developments.

The DRECP integrated planning process, as described in Volume II, avoids and minimizes this impact through the siting of DFAs and through the reserve design. Renewable energy development would be restricted to DFAs under the DRECP; therefore, Alternative 1 would allow the siting of renewable energy development only within approximately 6% of the available lands in Plan Area (1,070,000 acres of DFAs). Of which, siting and construction of renewable energy development would result in ground disturbance to less than 1% of the available lands in the Plan Area (approximately 182,000 acres).

In conjunction with DFA siting, the DRECP integrated planning process identified reserve design lands within which renewable energy development would be prohibited and conservation would occur. As described below under Impacts of the Reserve Design, the DRECP Plan-Wide Reserve Design Envelope for Alternative 1 covers 15,039,000 acres of the Plan Area (79% of the available lands in the Plan Area); therefore, 79% of the available lands in the Plan Area would not have the potential to affected by fragmentation or population isolation impacts from Covered Activities.

In order to minimize habitat fragmentation and population isolation, DFAs were sited in less intact and more degraded areas. Based on the terrestrial intactness analysis developed for the DRECP area, approximately 93% of the DFAs in Alternative 1 are characterized by low or moderately low intactness. Therefore, a majority of the DFAs are in locations with existing habitat fragmentation and population isolation such that development of Covered Activities in these areas would not appreciably contribute to additional effects.

Other measures of fragmentation and population isolation effects include the amount of impacts on environmental gradients. Environmental gradients are spatial shifts in physical and ecological parameters across a landscape. Environmental gradients are influenced by factors such as temperature, precipitation, wind, and solar exposure that vary with physical factors such as elevation, latitude, slope, and aspect. The impact analysis addresses four types of environmental gradients in the Plan Area: elevation, landforms, slope, and aspect.

Elevation: Under Alternative 1, 99% of the impacts from Covered Activities would occur in DFAs below 4,000 feet, including 59% of the impacts occurring below 1,000 feet and 24% between 2,000 and 4,000 feet. As the majority of impacts occur in DFAs below 4,000 feet, impacts will be greater to natural communities that occur below this elevation such as desert scrub natural communities as compared to natural communities that occur at higher elevations. All of the geothermal impacts are at elevations below 1,000 feet, including 71% below sea level. Solar impacts also tend to be concentrated in the lower elevations, with 33% of impacts below 1,000 feet. Wind impacts tend to be at higher elevations, with 85% of impacts at elevations above 2,000 feet. Transmission impacts would be fairly evenly distributed among elevations from sea level to 4,000 feet, but 50% of impacts would be between 2,000 to 4,000 feet elevation. Habitat fragmentation, population isolation and gene flow impacts would be

concentrated at lower elevations, which has the potential to reduce the potential for successful species range shifts, contractions, and expansions for lower elevation Covered Species and natural communities in response to climate change. As Alternative 1 would impact less than 1% of all available land within the Plan Area, any impacts to successful species range shifts, contractions, and expansions will be relatively minor.

Landforms: Landforms in the Plan Area include canyons/deeply incised streams, mountain tops/high ridges, open slopes, and plains. Under Alternative 1, the vast majority (96%) of impacts within DFAs would occur to plains, with these impacts spread across the different impact types, including 75% from solar, 1% from wind, 10% from geothermal, and 14% from transmission.

Habitat fragmentation, population isolation and gene flow impacts would be concentrated in plains, which has the potential to reduce the potential for successful species range shifts, contractions, and expansions for Covered Species and natural communities associated with plains in response to climate change. As Alternative 1 would impact less than 1% of all available land within the Plan Area, any impacts to successful species range shifts, contractions, and expansions will be relatively minor.

Slope: Under Alternative 1, total impacts within DFAs would be progressively less with increasing slope. The large majority (92%) of impacts would occur on slopes less than 5%, and 99% of impacts would occur on slopes up to 20%. On slopes less than 20%, impacts would be spread across the different impacts types, including 74% from solar, 1% from wind, 10% from geothermal, and 15% from transmission. Habitat fragmentation, population isolation, and gene flow impacts would be concentrated on slopes less than 20%, which has the potential to reduce the potential for successful species range shifts, contractions, and expansions for Covered Species and natural communities that inhabit lower slopes in response to climate change. As Alternative 1 will impact less than 1% of all available land within the Plan Area, any impacts to successful species range shifts, contractions, and expansions will be relatively minor.

Aspect: Under Alternative 1, impacts within DFAs would generally be well distributed among the different aspects Impacts from solar, geothermal, wind, and transmission would have similar distributions across the different aspects compared to overall impacts. By distributing the impacts across all aspects, there is a less potential to interrupt species movement and gene flow for species that occur within any one aspect.

Siting, construction, decommissioning, and operation of the renewable energy and transmission projects has the potential to result in adverse fragmentation and population isolation effects, but these effects are avoided and minimized through the DFAs and reserve

design envelope, as well as through the implementation of avoidance and minimization CMAs (AM-LL-1 through AM-LL-4).

Impact BR-8: Construction of generation facilities or transmission lines would result in increased predation of listed and sensitive wildlife species.

Higher predator densities and hence high predation rates are a documented effect of increased human development in the Plan Area. The extent to which Covered Activities contribute to increasing predation through phenomena like predator subsidization is linked to the likely extent of Covered Activities in undisturbed parts of desert.

Agricultural landscapes in the west Mojave, Lucerne Valley and Imperial Borrego Valley or surrounding Blythe are already disturbed, with relatively high levels of human activity that supplement predators such as ravens and coyotes, and support covered predator species such as burrowing owls and Swainson's hawk. Therefore, covered operational activities in already disturbed rural and agricultural landscapes are would result in a little increase in predation.

However, Covered Activities in undisturbed desert habitat are likely to disproportionately supplement predators, increase predator density and consequently increase predation rates on Covered Species. Alternative 1 would result 109,000 acres of long-term conversion of natural desert communities with 73,000 acres of impacts (40% of the total ground disturbance) within areas characterized by disturbed land cover types.

All impacts in the Kingston and Funeral Mountains, Providence and Bullion Mountains subareas would be in natural communities and therefore more likely to increase predation rates on susceptible species like desert tortoise, Mojave fringe-toed lizard, and nesting birds species. Much of the development in the Cadiz and Chocolate Mountains subarea, would be expected in the BLM Solar SEZ area adjacent to the I-10 corridor. This area may already experience increased predator densities as a consequence of human development, the additional impact of further development would therefore be attenuated. However, development in more remote parts to the subarea would likely increase predation.

Wind and solar development in the West Mojave and Eastern Slopes and the Pinto Lucerne Valley and Eastern Slopes subareas may supplement predators in undisturbed environments. In these areas, susceptible species would include nestlings and eggs of Covered Species like tricolored blackbird, golden eagle, as well as small reptiles like the Tehachapi slender salamander and mammals like the Mohave ground squirrel. Solar development in these subareas is likely to occur in already disturbed agricultural landscapes around Lancaster or to the west of Edwards AFB. Any development to the North of Edwards is likely to affect Mohave ground squirrel.

Application of a Common Raven management plan (AM-PW-6), approved by the appropriate DRECP Coordination Group would reduce project activities that increase predator subsidization. Including, removal of trash and organic waste; minimize introduction of new water sources including pooling of water from dust control; removal of carcasses from bird and bat collisions; and reduction in new nesting and perching sites where feasible.

The level of impact on Non-Covered Species would be similar to that discussed for the Covered Species.

Impact BR-9: Operational activities would result in avian, and bat, injury and mortality from collisions, thermal flux or electrocution at generation and transmission facilities.

The impacts of operation activities on avian and bat injury and mortality are analyzed below for wind turbines, solar, and transmission.

Wind Turbine

This section summarizes the range of impacts to bird and bat species within the Plan Area that occur as a consequence of wind turbine operation. The range of collision rates calculated in Table IV.7-107 are indicative of the overall annual collision rates for all bird and bat species, not just Covered Species. The range of collision rates is estimated for the final full build-out of wind over the life of the Plan, and is based on the range of collision rates in existing published and gray literature. While it is possible to provide a range of possible collision rates, it is not feasible to estimate the collision rate for each Covered Species, but only infer the propensity for a species to be at risk from collision by the overlap between the species habitat models and the likely distribution of wind generation across the subareas.

The expected distribution of wind generation indicates that 54% of all collisions would occur in the West Mojave and Eastern Slopes subarea, 34% in Pinto Lucerne Valley and Eastern Slopes subarea, and 12% in the Cadiz Valley and Chocolate Mountains subarea. Overall, Alternative 1 would result in a median of approximately 2,000 collision per year for birds and 11,000 collisions per year for bats across the Plan Area.

Application of siting CMAs would avoid or minimize the risk to species localities. Setbacks from active nests would be required for Bendire's thrasher, California condor, Gila woodpecker, and golden eagle. In addition, projects would be sited and designed to avoid impacts to occupied and suitable habitat for Covered Species to the maximum extent feasible. Implementation of bat specific CMAs include 0.5-mile setbacks from all bat maternity roosts and 5% disturbance caps on desert scrub and woodland habitats in the

vicinity of occupied pallid bat and Townsend's big-eared bat roosts would reduce impacts to bat Covered Species.

Applicants would develop and implement project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meets the approval of the appropriate DRECP Coordination Group. The goal of the project-specific Bird and Bat Covered Species Operational Actions will be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar, geothermal, or transmission project. A bird and bat use and mortality monitoring program will be implemented during operations using current protocols and best procedures available at time of monitoring. Further, the compensation requirements in AM-LL-4 would be based on ongoing/annual fees and the biological basis for the fee will be determined by the mortality effects as annually measured and monitored according to AM-LL-4.

Similarly, a Condor Operations Strategy (COS) would be developed on a project-specific basis with the goal of avoiding mortality from operations of wind, solar and geothermal projects. No take for condors will be will be permitted in the form of kill from project operations. Any actions taken to encourage condors to leave an area that might result in harassment, injury, or mortality to the bird will be conducted by a Designated Biologist.

Table IV.7-107
Plan-Wide Estimated Range of Collisions per Year
for Birds and Bats by Subarea – Alternative 1

Ecoregion Subarea	# Turbines	Birds (Collisions/Yr)[1]			Bats (Collisions/Yr)[1]		
		Low	*Median*	*High*	*Low*	*Median*	*High*
Cadiz Valley and Chocolate Mountains	60	100	300	1,000	100	1,000	8,000
Imperial Borrego Valley	-	-	-	-	-	-	-
Kingston and Funeral Mountains	-	-	-	-	-	-	-
Mojave and Silurian Valley	-	-	-	-	-	-	-
Owens River Valley	-	-	-	-	-	-	-
Panamint Death Valley	-	-	-	-	-	-	-
Pinto Lucerne Valley and Eastern Slopes	160	200	800	3,000	300	4,000	23,000
Piute Valley and Sacramento Mountains	-	-	-	-	-	-	-
Providence and Bullion Mountains	-	-	-	-	-	-	-

Table IV.7-107
Plan-Wide Estimated Range of Collisions per Year for Birds and Bats by Subarea – Alternative 1

Ecoregion Subarea	# Turbines	Birds (Collisions/Yr)[1]			Bats (Collisions/Yr)[1]		
		Low	*Median*	*High*	*Low*	*Median*	*High*
West Mojave and Eastern Slopes	260	400	1,000	5,000	500	6,000	36,000
Grand Total	**480**	**700**	**2,000**	**9,000**	**900**	**11,000**	**67,000**

[1] Method for estimation of annual bird and bat collision rates described in Section IV.7.1.1.2 and discussed in more detail in Section IV.7.2.1.3

Note: The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table

Solar

Collision with power towers, heliostats, solar arrays, and injury or mortality from exposure to concentrated solar flux, are all known impacts of solar generation facilities. While the nature of the impacts remain the same for all alternatives, the distribution of impacts across the plan area varies in relation to the anticipated quantity and location of solar facilities in each alternative. Under Alternative 1 a total of 1,070,000 acres of the Plan Area would designated as DFAs, of which up to 129,000 acres would be directly impacted by solar development; this is the most spatially restricted of all development alternatives.

In Alternative 1, plan-wide solar development would result in a 4.5-fold increase in collision risks relative to baseline, i.e., the would be four and a half times more solar facilities across the Plan Area than is currently identified in the baseline conditions (Appendix O). 16% of the anticipated solar facilities would be in the Cadiz Valley and Chocolate Mountains Region, and 37% would be in the Imperial Borrego Valley subarea. The West Mojave and Eastern Slopes subarea would support approximately 28% of the solar development, with a further 13% occurring in disturbed lands east of Barstow split between the Pinto and Lucerne Valley subarea and the Mojave and Silurian Valley Subarea. The remaining 6% would be spread across the rest of the Plan area.

Solar impacts in a subarea may be disproportionately important because of the biological value of a given area. Impacts in Imperial Borrego Valley and the Cadiz Valley would disproportionately affect wetland species like the least Bell's vireo, Yuma clapper rail, California black rail

Alternative 1 has some of the most restricted DFAs in the Imperial Borrego Valley ecoregion subarea, these restrictions would increase the density of development in the remaining DFAs. In particular, the DFAs in the agricultural lands running from the west of Calipatria to the Shoreline of the Salton Sea represent great potential for development because there is already extensive transmission throughout this area to serve existing geothermal facilities. However, this area also provides foraging for Cattle Egret, White-faced Ibis, Sandhill Crane, Mountain Plover, Whimbrel, Long-billed Curlew throughout winter (Shuford et al 2000). Further, the proximity of the Salton Sea would mean that development could disproportionately affect migrating and resident water birds including ducks, geese, pelicans, cormorants, and wading birds that would otherwise be less affected if development was more spread out.

Impacts in the Western Mojave or the Lucerne Valley may disproportionately affect nesting Swainson's hawk populations in the agricultural areas around Lancaster and Victorville, or impact foraging habitat for nesting golden eagle populations. Other species, like burrowing owl are less regionally specific and would be affected in subareas with significant quantities of open agriculture lands. They would especially be affected by development in Imperial Borrego Valley, which contains the largest population of burrowing owls in California, and in the West Mojave and Eastern Slopes subarea, in the open agricultural lands around Lancaster and Palmdale.

To offset potential impacts, the application of CMAs would require projects to be sited and designed to avoid impacts to occupied and suitable habitat for Covered Species, to the maximum extent feasible. Further, siting and construction CMAs require setbacks from riparian and wetland habitats which would minimize direct loss. Compensation CMAs would offset habitat loss for Covered Species. A bird and bat use and mortality monitoring program would be implemented during operations. Any proposed projects that are likely to impact bird and bat Covered Species during operation would develop and implement project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meet the approval of the appropriate DRECP Coordination Group. The goal of the project-specific Bird and Bat Covered Species Operational Actions would be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar and geothermal projects. The compensation requirements of AM-LL-4 would be based on ongoing/annual fees and the biological basis for the fee would be determined by the mortality effects as annually measured and monitored according to AM-LL-4. In combination, the application of siting, monitoring, operational and compensation CMAs would minimize impacts to resident and migratory birds. Bat mortality from solar facilities may occur because of collision or solar flux injury. No DFAs are known to be specifically sensitive areas for bat foraging, and implementation of bat specific CMAs include 500 feet setbacks from all bat maternity roosts and 5% disturbance caps on desert scrub and woodland habitats in the vicinity of occupied

pallid bat and Townsend's big-eared bat roosts would reduce impacts to bat Covered Species. Further, the development of Bird and Bat Covered Species Operational Actions (AM-LL-4) as discussed above would greatly reduce the risk to bat populations. Consequently, application of CMAs would reduce the overall impacts to bat populations.

Transmission

The transmission collision and electrocution impacts would occur from generation tie lines (collector lines), new substations, and major transmission lines (delivery lines) that deliver power to major load centers. The distribution of impacts from collector lines would mostly occur within DFAs and be similar in distribution to the generation facilities. Most of the affected areas would be in West Mojave and Eastern Slopes, Pinto Lucerne Valley, Cadiz Valley and Chocolate Mountains, and the Imperial Borrego Valley subareas, with 1,000 acres, 4,000 acres, 7,000 acres and 16,000 acres of terrestrial impacts anticipated respectively. The remaining terrestrial impacts would be spread throughout the remaining subareas.

Both large transmission lines and the network of smaller collector lines would present collision and electrocution hazard to bird Covered Species. In particular, lines running perpendicular to migratory corridors or close to bird refuges would represent a greater hazard. Such lines would include those anticipated to run parallel to the Tehachapi Mountains and those that would cross the Tehachapi mountain passes. In addition, anticipated delivery lines in Chuckwalla Valley would run parallel to I-10 corridor in the existing transmission corridors. In the Imperial Borrego Valley subarea, lines would run along the along the eastern side of Salton Sea in existing transmission corridors that run parallel to the foothills of the Chocolate Mountains; and would also run from east to west between the Imperial Valley and the San Diego area. All these lines would represent additional risk to migrating and overwintering covered avian species, due to their location. Collision risks in these areas increase during storm events when flocks of migrating birds come down to wait out the storms before continuing their migration.

All bird Covered Species may be impacted by additional transmission infrastructure. To ameliorate potential hazards, transmission projects would reduce impacts to Covered Species by implementing Plan-wide, landscape-level, natural community, and Covered Species CMAs where feasible, as discussed under the wind impacts section.

Applicants would develop and implement a project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meets the approval of the appropriate DRECP Coordination Group. The BBOS aims to avoid and minimize direct mortality of birds and bats from the operation of the specific transmission project. A bird mortality monitoring program will be implemented during operations using current protocols and best

procedures available at time of monitoring. Bird and Bat Covered Species Operational Actions would include compensatory mitigation to offset the inadvertent mortality to covered avian species. Such compensation would be in accordance with AM-LL-4 and may include ongoing/annual fees. The biological basis for the fee will be determined by the mortality effects as annually measured and monitored according to AM-LL-4.

In addition, transmission projects would implement transmission specific CMAs that would: where feasible, bury electrical collector lines along roads (AM-TRANS-1); fit flight diverters on all transmission projects spanning or within 1,000 feet of water bodies and watercourses (AM-TRANS-2); avoid siting transmission projects that span canyons or are located on ridgelines (AM-TRANS-3); restrict transmission projects to within designated utility corridors (AM-TRANS-4). With the implementation of CMAs impacts to Covered Species would minimized.

The level of impact on Non-Covered Species would be similar to that discussed for the Covered Species.

Operational Impacts Take Estimates for Covered Avian and Bat Species

The following section summaries the initial estimates for take of Covered Species by operational activities that would require compensatory mitigation. Take estimates integrate all sources of mortality for each technology that are discussed above. Section IV.7.1.1.2 provides the method used to estimate the operational take for Covered avian and bat species provided here. Based on the location of DFAs and MW distribution, it is expected that take of Covered Species associated with Agricultural habitats would be particularly affected, which would include Covered Species such as burrowing owl, Swainson's hawk, greater sandhill crane and mountain plover.

Table IV.7-108
Plan-Wide Estimated Total Take for Covered Avian and Bat Species – Alternative 1

Covered Bird and Bat Species	Solar Impact	Wind Impact	Geothermal Impact	Total Impact
Bendire's thrasher	60	10	0	60
Burrowing owl	220	10	20	250
California condor[1]	0	0	0	0
California black rail	50	0	10	60
Gila woodpecker	50	0	0	50
Golden eagle[2]	n/a	n/a	n/a	n/a
Least Bell's vireo	190	0	0	190
Mountain plover	120	10	20	140

Table IV.7-108
Plan-Wide Estimated Total Take for Covered Avian and Bat Species – Alternative 1

Covered Bird and Bat Species	Solar Impact	Wind Impact	Geothermal Impact	Total Impact
Greater sandhill crane	20	0	10	30
Southwestern willow flycatcher	100	0	0	100
Swainson's hawk	60	0	0	70
Tricolored blackbird	100	10	0	110
Western yellow billed cuckoo	50	0	0	60
Yuma clapper rail	50	0	10	60
Grand Total Avian Species	**1070**	**40**	**70**	**1180**
California leaf-nosed bat	50	0	0	50
Pallid bat	40	20	0	60
Townsend's big-eared bat	90	10	10	100
Grand Total Bat Species	**180**	**30**	**10**	**210**

[1] Take for California condor would not be permitted under the DRECP.

[2] Take of Golden Eagle would be permitted on a project by project basis. Based on the 2013 analysis, no more than 15 golden eagles per year would be authorized for 2014 for any new activity within the Plan Area. Take limits for the DRECP area will be re-evaluated annually based on the amount of ongoing take and population estimates of eagles within the local-area population of eagles.

Note: The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table

Impact Reduction Strategies and Mitigation

The implementation of the Plan would result in conservation of some desert lands as well as the development of renewable energy generation and transmission facilities on other lands. There are several ways in which the impacts of the renewable energy development covered by the Plan would be lessened. First, the Plan incorporates specific biological reserve design components and LUPA components for each alternative. Additionally, Covered Activities under the Plan would be required to implement CMAs to avoid and minimize impacts inside and outside the DFAs and CMAs to compensate for the impacts of Covered Activities. Additionally, the implementation of existing laws, orders, regulations and standards would reduce the impacts of project development. If significant impacts would still result after implementation of CMAs and compliance with applicable laws and regulations, then specific mitigation measures are recommended in this section.

Conservation and Management Actions

The conservation strategy for Alternative 1 (presented in Volume II) defines specific actions that would reduce the impacts of this alternative. The impact assessment above references applicable avoidance, minimization, and compensation CMAs that would reduce and compensate for the impacts of Covered Activities.

For all Covered Activities throughout the Plan Area, the avoidance and minimization Plan-wide CMAs AM-PW-1 through AM-PW-17 would be required to reduce potential adverse effects through the implementation of Plan-wide standard practices. Resource-specific CMAs would be required for Covered Activities impacting specific resources, including the CMAs under AM-DFA-RIPWET, AM-DFA-DUNE, AM-DFA-ONC, AM-DFA-AG, AM-DFA-BAT, AM-DFA-PLANT, and AM-DFA-ICS. Additionally, all impacts resulting from Covered Activities in the Plan Area would be required to compensate impacts to biological resources (COMP-1 through COMP-5).

Laws and Regulations

Similar to the No Action Alternative, existing laws and regulations will reduce certain impacts of Covered Activity implementation. Relevant regulations are presented in the Regulatory Setting in Volume III. The requirements of relevant laws and regulations are summarized above for the No Action Alternative in Section IV.7.3.1.1.1.

Mitigation Measures

After implementation of the CMAs and existing laws and regulations, mitigation measures will be applied to further reduce some of the adverse impacts on biological resources. The biological conservation strategy is an essential part of the project description for the DRECP. Implementation of the DRECP, including the CMAs, would avoid, minimize, and compensate for the impacts of the Covered Activities such that additional mitigation measures are not necessary for all but the following resource impacts.

Mitigation Measure for Impact BR-1 Siting and construction of renewable energy and transmission development would result in impacts to rare natural communities. If habitat assessments identify rare natural communities on or within 0.25 miles of a project site, the DRECP shall require the following measure be implemented.

BR-1a Prepare a Rare Natural Community Avoidance and Mitigation Plan that specifically addresses how rare natural communities would be avoided or mitigated for any ground disturbance impacts sited within 0.25 mile of

mapped rare natural communities. The Plan shall be prepared as part of the project-specific environmental review.

For avoidance of rare natural communities, the Plan shall demonstrate that the project facilities have been sited or that the project has implemented appropriate site-specific design features to ensure that the effects of the proposed project would not directly impact or contribute to indirect effects on the rare natural communities on or adjacent to the project site. Avoidance of potential indirect effects on rare natural communities relate to dust, fire management, invasive plants, and degradation of ecological processes (i.e., hydrological processes and soil processes).

For impacts to rare natural communities, the Plan shall demonstrate that the compensation used to offset the impacts of the proposed project through CMAs COMP-1 and COMP-2 also offsets the loss of rare natural community alliances through in-kind acquisition or non-acquisition actions that benefit the rare natural community alliance(s) impacted.

IV.7.3.3.1.2 Impacts from Reserve Design

The impacts of the reserve design collectively refers to the designation and management of existing conservation areas (i.e., LLPAs and MEMLs), BLM LUPA conservation designations, and reserves established within Conservation Planning Areas. These are considered beneficial impacts for biological resources, and this section serves as a biological resources conservation analysis for this alternative. This section is organized by biological resource at the landscape level, natural community level, and species level.

Overall, of the 15,039,000 acres within the Alternative 1 Reserve Design Lands, 40% is within BLM LUPA conservation designations, 9% is in the Conservation Planning Areas, and the remaining 51% is located in existing conservation areas. The SAA from the Preferred Alternative located in the Silurian Valley would be conserved in an ACEC under Alternative 1. The SAA from the Preferred Alternative located north of Kramer Junction in the West Mojave would be conserved in ACEC and Conservation Planning Areas under Alternative 1. Within the Reserve Design Lands, the interagency Plan-wide Conservation Priority Area covers approximately 1,732,000 acres, including 1,545,000 acres of BLM LUPA conservation designations and 188,000 acres of Conservation Planning Areas.

The DRECP Plan-Wide Reserve Design Envelope for Alternative 1was developed from the reserve design envelope developed through the reserve design process described in Section I.3.4.4 and Appendix D; however, the extent of the DRECP Plan-Wide Reserve Design

Envelope for Alternative 1 differs from the extent of the envelope described in Volume I because it was integrated with the other elements of the alternative.

Overall, the DRECP Plan-Wide Reserve Design Envelope for Alternative 1 would include 94% of the conceptual reserve design envelope described in Volume I. The DRECP Plan-Wide Reserve Design Envelope for Alternative 1 would also include high percentages of the conceptual reserve design envelope in all of the subareas, ranging from 84% in Imperial Borrego Valley and Owens River Valley subareas to 99% in the Kingston and Funeral subarea.

Areas not included in the DRECP Plan-Wide Reserve Design Envelope for Alternative 1 that are in the conceptual reserve design envelope described in Volume I include:

- Portions of Study Area Lands: The DRECP Variance Lands occupy approximately 900 acres that were identified in the reserve design envelope that are not designated as Reserve Design Lands under Alternative 1.
- Portions of the DFAs: Areas in DFAs under Alternative 1 occupy approximately 199,000 acres that were identified in the reserve envelope that are not be designated as Reserve Design Lands, including the following geographic areas:
    - Desert Center area along Interstate 10 in east Riverside County
    - Western and eastern areas of Imperial Valley
    - East of Barstow
    - Foothill areas of Palmdale and south of Adelanto
    - Coso Range area
- Undesignated Areas : Approximately 722,000 acres were not designated as Reserve Design Lands under Alternative 1 that were identified in the conceptual reserve envelope, which is primarily comprised of BLM-administered lands in the Plan Area without BLM LUPA conservation designations over them.

Landscape

Habitat Linkages

Figures III.7-26 through III.7-36 in Chapter III.7 of Volume III shows the desert linkage network for the Plan Area and in each ecoregion subarea. Table IV.7-109 shows the Plan-wide conservation of the desert linkage network under Alternative 1. Conservation of the desert linkage network totals more than 2.6 million acres (73%).

The linkage in the northern portion of the Cadiz Valley and Chocolate Mountains subarea that extends from the Ward Valley to the Vidal Valley and south to the Big Maria Mountains and the Palen Mountains is almost entirely conserved. The linkage from the Ward Valley to the Cadiz Valley is conserved except for one DFA. The three smaller connections in the Palen Valley are all almost entirely conserved. Though the majority of the remaining linkages are conserved, there are some DFAs that that may interrupt them (see Section IV.7.3.3.1.1). In the Imperial Borrego Valley, the connection that extends into the Cadiz Valley and Chocolate Mountains subarea to the east is entirely within conserved areas in this subarea, except for the northernmost piece near Rainbow Mine. The remaining linkage along East Mesa is partly conserved. The linkages in the Kingston and Funeral Mountains subarea along Shadow Valley and between Halloran Springs and the Shadow Mountains are entirely conserved, as well as the westernmost linkage to the Silurian Valley. None of the linkages in the Mojave and Silurian Valley subarea are entirely conserved since the middle portion of the subarea is not in Reserve Design Lands. A section of the single linkage in the Owens River Valley subarea is not conserved. The connectivity of the northernmost linkage in the Panamint Death Valley subarea is preserved since most of that linkage is conserved. The connection in the China Lake Naval Weapon Center is not conserved in Reserve Design Lands, but most of the remainder of this linkage to the west is conserved. The westernmost portions and some areas along the southern boundary of the subarea of the linkage in the eastern portion of the subarea is not in Reserve Design Lands, but connectivity in this linkage is mostly preserved. In the Pinto Lucerne Valley and Eastern Slopes subarea, none of the linkages are completely conserved, but the southern portion of all of them are except for the linkage that extends into the West Mojave and Eastern Slopes subarea, which is entirely conserved within the Pinto Lucerne Valley and Eastern Slopes subarea. Only the linkages along the eastern boundary of the Piute Valley and Sacramento Mountains subarea would not be in Reserve Design Lands. All of the linkages in the Providence and Bullion Mountains subarea would be largely maintained in Reserve Design Lands. In the West Mojave and Eastern Slopes subarea the connection between the southern boundary of the Plan Area directly north to the Los Angeles/Kern County line is mostly conserved. Although large portions of the other linkages in this subarea are conserved, none of them are wholly conserved in Reserve Design Lands.

In addition to conservation of the desert linkage network, CMAs provide for the avoidance and minimization of certain linkages in the DFAs (see Section IV.7.3.3.1.1).

Table IV.7-109
Plan-Wide Conservation Analysis for the Desert Linkage Network – Alternative 1

Desert Linkage Network by Ecoregion Subarea	Available Lands (acres)	Existing Conservation (acres)[1]	BLM LUPA Conservation Designations (acres)[2]	Conservation Planning Areas (acres)[3]	Total Conservation (acres)	% of Available Lands
Cadiz Valley and Chocolate Mountains	890,000	187,000	521,000	8,000	716,000	80%
Imperial Borrego Valley	156,000	14,000	106,000	200	120,000	77%
Kingston and Funeral Mountains	174,000	28,000	113,000	1,000	142,000	82%
Mojave and Silurian Valley	507,000	179,000	204,000	6,000	390,000	77%
Owens River Valley	19,000	40	13,000	700	14,000	72%
Panamint Death Valley	206,000	109,000	77,000	500	186,000	90%
Pinto Lucerne Valley and Eastern Slopes	291,000	16,000	145,000	1,000	162,000	56%
Piute Valley and Sacramento Mountains	152,000	14,000	93,000	2,000	110,000	72%
Providence and Bullion Mountains	426,000	144,000	219,000	3,000	365,000	86%
West Mojave and Eastern Slopes	860,000	45,000	371,000	51,000	467,000	54%
Grand Total	**3,682,000**	**736,000**	**1,862,000**	**74,000**	**2,672,000**	**73%**

[1] Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs).

[2] Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), which includes BLM and non-BLM inholdings within the designation.

[3] Conservation Planning Areas include areas of the reserve design from which reserve areas would be assembled on private and other public land.

Notes: Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the

nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Hydrological Resources

A conservation analysis for hydrological resources is provided below, including playa, seep/spring, and the four major rivers in the Plan Area (i.e., Amargosa, Colorado, Mojave and Owens) for Alternative 1. Conservation of riparian areas and wetlands, which co-occur with many of these hydrological resources, is provided below under Natural Communities.

Playa

Playa totals 322,000 acres in the Plan Area. Overall, 59% (190,000 acres) would be conserved under Alternative 1. Existing Conservation would account for 29% of the conservation, BLM LUPA would account for 29%, and Conservation Planning Areas would account for 1%. Additionally, playas and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks. CMAs for playas would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided riparian or wetland natural communities.

Seep/Spring

There are 478 seep/spring locations in the Plan Area. Overall, 64% (307 locations) of the seep/spring locations would be conserved under Alternative 1. The conservation of seep/spring under Alternative 1 would be relatively high in all subareas. These include Cadiz Valley and Chocolate Mountains (100%, 5 locations), Imperial Borrego Valley (43%, 10 locations), Kingston and Funeral Mountains (71%, 59 locations), Mojave and Silurian Valley (70%, 19 locations), Owens River Valley (32%, 12 locations), Panamint Death Valley (92%, 39 locations), Pinto Lucerne Valley and Eastern Slopes (60%, 50 locations), Piute Valley and Sacramento Mountains (73%, 14 locations), Providence and Bullion Mountains (86%, 57 locations), and West Mojave and Eastern Slopes (45%, 42 locations).

Overall, Existing Conservation would account for 62% of the conservation of seep/spring, BLM LUPA conservation designations would account for 34%, and Conservation Planning Areas would account for 4%. Additionally, seeps and springs and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks. However, it is likely that most, if not all, that all seep/spring locations and associated Covered Species and hydrological functions would be conserved

through adherence to site-specific CMAs. CMAs for seep/spring locations would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided wetland natural communities.

Major Rivers

Overall, 74% of the major rivers would be conserved under Alternative 1, including 87% of the Amargosa River, 42% of the Colorado River, 70% of the Mojave River, and 70% of the Owens River. Conservation Planning Areas would account for 25% of the conservation of the major rivers, Existing Conservation would account for 32%, and BLM LUPA conservation designations would account for 15%. Additionally, major rivers and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks.

Dune and Sand Resources

Overall, 75% (1,118,000 acres) of dunes and sand resources would be conserved under Alternative 1. At least 50% of dunes and sand resources would be conserved in 8 subareas in the Plan Area that contain substantial acreage of dunes and sand resources, including Cadiz Valley and Chocolate Mountains at 83% (497,000 acres), Imperial Borrego Valley at 63% (83,000 acres) Kingston and Funeral Mountains at 66% (46,000 acres), Mojave and Silurian Valley at 81% (163,000 acres), Owens River Valley at 60% (5,000 acres), Panamint and Death Valley at 84% (118,000 acres), Pinto Lucerne Valley and Eastern Slopes at 60% (38,000 acres), and Providence and Bullion Mountains at 64% (156,000 acres). The Western Mojave and Eastern Slopes subarea contains lower conservation of dunes and sand resources under Alternative 1 at 33% (12,000 acres). Importantly, dunes and sand resources and associated Covered Species, natural communities and ecological functions would be fully avoided through application of the dune avoidance and minimization CMAs.

Environmental Gradients

The conservation analysis addresses four types of environmental gradients in the Plan Area: elevation, landforms, slope, and aspect.

Elevations are characterized by 1,000-foot interval classes ranging from below sea level to 9,000 feet. Approximately 64% of the Plan Area is between sea level and 5,000 feet, 35% is below sea level, and less than 1% is above 5,000 feet. Under Alternative 1, the majority of available lands would be conserved at all elevation classes above sea level, ranging from 66% for the 0 to 1,000 feet class to 59% of the 7,000 to 8,000 feet class. The average conservation of elevation classes above sea level would be 67%. The majority of Plan Area

lands for each elevation class above sea level will be conserved under Alternative 1 optimizing the potential for successful species range shifts, contractions, and expansions, which may occur in response to climate change. In addition, the conservation of such a high proportion of Plan Area lands across all elevation classes allows for the conservation of the greatest range and diversity of natural communities and Covered Species habitats. Conserving the majority of each elevation class within the Plan Area will also promote ecological processes and help sustain natural communities and Covered Species.

Landforms in the Plan Area include canyons/deeply incised streams, mountain tops/high ridges, open slopes, and plains. Plains are the dominant landform in the Plan Area totaling 13,906,386 acres, or 73% of the Plan Area. Conservation of the plains landform under Alternative 1 would include 68% of plains. As the majority of Covered Species in the Plan Area are associated with plains during part or all of its life cycle, the conservation of the majority of this landform is of benefit to a large number of Covered Species including those Covered Species that spend its entire life cycle within this type of landform, and those Covered Species that utilize it during parts of its life cycle such as for breeding, migration, or wintering. Open slopes make up about 16% of the Plan Area and canyons/deeply incised streams and mountain tops/high ridges each make up about 5% to 6% of the Plan Area.

Conservation of the remaining landforms under Alternative 1 would include 87% of canyons/deeply incised streams, 86% of mountain tops/high ridges, and 84% of open slopes. As the majority of Plan Area lands for all landforms will be conserved under Alternative 1, it optimizes the potential for successful species range shifts, contractions, and expansions, which may occur in response to climate change. In addition, the conservation of such a high proportion of Plan Area lands across all landforms allows for the conservation of the greatest range and diversity of natural communities and Covered Species habitats. Conserving the majority of each landform within the Plan Area will also promote ecological processes and help sustain natural communities and Covered Species.

Slopes in the Plan Area are characterized by 5% interval classes. Sixty-one percent of the Plan Area lands are on slopes up to 5%, and 87% of the Plan Area lands are on slopes less than 20%. Conservation of the slope classes under Alternative 1 would range from 65% of slopes up to 5% to 90% of slopes over 50%, with 85% of slopes less than 20% conserved under Alternative 1. The vast majority of Plan Area lands within each slope class will be conserved under Alternative 1 optimizing the potential for successful species range shifts, contractions, and expansions, which may occur in response to climate change. In addition, the conservation of such a high proportion of Plan Area lands across all slope classes allows for the conservation of the greatest range of natural communities and Covered Species habitats. Conserving the majority of each slope class within the Plan Area will also promote ecological processes and help sustain natural communities and Covered Species. Aspects in the Plan Area include nine classes: north, northeast, east, southeast, south, southwest, west,

northwest, and flat. Except for flat, the remaining eight aspects are fairly evenly distributed in the Plan Area, ranging from 9% for northwest aspects to 15% for northeast aspects. Flat terrains account for only 1% of the Plan Area. Under Alternative 1, conservation of aspects would range from 67% for flat terrain to 85% of south aspect. The majority of Plan Area lands for each aspect class will be conserved under Alternative 1 optimizing the potential for successful species range shifts, contractions, and expansions, which may occur in response to climate change. In addition, the conservation of such a high proportion of Plan Area lands across all aspect classes allows for the conservation of the greatest range of natural communities and Covered Species habitats. As a number of plant Covered Species have specific aspect requirements, the conservation of the majority of lands within each aspect class is beneficial to those species. Conserving the majority of each aspect class within the Plan Area will also promote ecological processes and help sustain natural communities and Covered Species.

Natural Communities

Table IV.7-109 shows the conservation to natural communities within the reserve design. A conservation summary by general community is provided below. Appendix R2 provides a detailed analysis of natural community conservation by ecoregion subarea.

California forest and woodlands

Overall, approximately 693,000 acres (42%) of California forest and woodlands would be conserved under Alternative 1. The majority of the conserved California forest and woodland would occur in the Pinto Lucerne Valley and Eastern Slopes subarea and West Mojave and Eastern Slopes subareas. Approximately 40 acres would be conserved in the Owens River Valley subarea. Conservation would primarily come from BLM LUPA conservation designations. In addition to conservation of California forest and woodlands, CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

California forest and woodlands provide habitat for the following Covered Species: Tehachapi slender salamander, golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, bighorn sheep, and Bakersfield cactus. California forest and woodlands also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-50 in Section IV.7.3.2.1. Therefore, conservation of California forest and woodlands would provide conservation of suitable habitat for these species.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 32,000 acres (30%) of chaparral and coastal scrubs would be conserved under Alternative 1. The majority of conserved chaparral and coastal scrubs would occur in the Pinto Lucerne Valley and Eastern subarea and over a third of conservation would occur in the Slopes West Mojave and Eastern Slopes subarea. Conservation is fairly evenly distributed between existing conservation, BLM LUPA conservation designations, and Conservation Planning Areas with Conservation Planning Areas being the largest of the three conservation categories. In addition to conservation of chaparral and coastal scrubs, CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Chaparral and coastal scrubs provide habitat for the following Covered Species: golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, Parish's daisy, and Bakersfield cactus. Chaparral and coastal scrubs also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-50 in Section IV.7.3.2.1. Therefore, conservation of chaparral and coastal scrubs would provide conservation of suitable habitat for these species.

Desert conifer woodlands

Overall, approximately 187,000 acres (65%) of desert conifer woodlands would be conserved under Alternative 1. The majority of conserved desert conifer woodlands would occur in the Pinto Lucerne Valley and Eastern Slopes and Providence and Bullion Mountains subareas. Conservation of this general community would primarily come from existing conservation. In addition to conservation of desert conifer woodlands, CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert conifer woodlands provide habitat for the following Covered Species: Tehachapi slender salamander, golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, bighorn sheep, and Parish's daisy. Desert conifer woodlands also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-50 in Section IV.7.3.2.1. Therefore, conservation of desert conifer woodlands would provide conservation of suitable habitat for these species.

Desert outcrop and badlands

Overall, approximately 1,299,000 acres (80%) of desert outcrop and badlands would be conserved under Alternative 1. The majority of the conserved desert outcrop and badlands

would occur in the Cadiz Valley and Chocolate Mountains and Piute Valley and Sacramento Mountains subareas. Most of the total conservation of desert outcrop and badlands are in areas of existing conservation. In addition to conservation of desert outcrop and badlands, CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert outcrop and badlands provide habitat for the following Covered Species: golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, desert kit fox, and bighorn sheep. Covered Species associated with desert scrub may also be associated with this general community. Desert outcrop and badlands also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-50 in Section IV.7.3.2.1. Therefore, conservation of desert outcrop and badlands would provide conservation of suitable habitat for these species.

Desert scrubs

Overall, approximately 9,690,000 acres (73%) of desert scrubs would be conserved under Alternative 1. Over half of the conserved acreage would occur in the Kingston and Funeral Mountains, Panamint Death Valley, Providence and Bullion Mountains, and Cadiz Valley and Chocolate Mountains subareas. However, conservation of desert scrubs is well distributed with conservation in every subarea of the Plan Area. As the most prevalent desert scrub natural community in the Plan Area, Mojavean–Sonoran desert scrub accounts for the majority of the conservation of desert scrub communities. The majority of the total conservation of desert scrubs would be in existing conservation areas. In addition to conservation of desert scrubs, CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert scrubs provide habitat for the following Covered Species: golden eagle, California condor, Bendire's thrasher, burrowing owl, Swainson's hawk, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, Mohave ground squirrel, bighorn sheep, desert tortoise, flat-tailed horned lizard, Mojave fringe-toed lizard, triple-ribbed milk-vetch, alkali mariposa-lily, desert cymopterus, Mojave tarplant, Little San Bernardino Mountains linanthus, Mojave monkeyflower, and Bakersfield cactus. Desert scrubs also provide habitat for desert kit fox and burro deer (Planning Species). Desert scrub also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-50 in Section IV.7.3.2.1. Therefore, conservation of desert scrubs would provide conservation of suitable habitat for these species.

Dunes

Overall, approximately 214,000 acres (76%) of dune natural communities would be conserved under Alternative 1. The majority of the conserved acreage would occur in the Mojave and Silurian Valley, Imperial Borrego Valley, and Panamint Death Valley subareas. The remaining conserved acreage is distributed throughout the remaining subareas. The majority of the total conservation of desert dunes would be in existing conservation. In addition to conservation of desert dunes, application of the CMAs would require that dune communities be avoided to the maximum extent feasible in DFAs. In addition, CMA application would prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

Dune communities provide habitat for the following Covered Species: Mojave fringe-toed lizard and flat-tailed horned lizard. Dune communities also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-50 in Section IV.7.3.2.1. Therefore, conservation of desert dunes would provide conservation of suitable habitat for these species.

Grasslands

Overall, approximately 57,000 acres (24%) of grasslands would be conserved under Alternative 1. The majority of the conserved acreage would occur in the Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas. As the most prevalent grassland natural community in the Plan Area, California Annual and Perennial Grassland accounts for the vast majority of the conservation of grassland communities. Conservation amongst existing conservation, BLM LUPA conservation designations, and Conservation Planning Areas is relatively well distributed. In addition to conservation of grasslands, CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Grassland communities provide habitat for the following Covered Species: golden eagle, burrowing owl, mountain plover, Swainson's hawk, Bendire's thrasher, and desert kit fox. Therefore, impacts to this community may have a negative effect on these species by removing or degrading suitable habitat. Grassland communities also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-50 in Section IV.7.3.2.1. Therefore, conservation of grasslands would provide conservation of suitable habitat for these species.

Riparian

Overall, approximately 679,000 acres (68%) of riparian communities would be conserved under Alternative 1. The majority of the conserved acreage would occur in the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas. As the most prevalent riparian natural community in the Plan Area, Madrean Warm Semi-Desert Wash Woodland/Scrub accounts for the majority of the conservation of riparian communities. Most of the conservation of riparian communities would occur in BLM LUPA conservation designations. In addition to conservation of riparian communities, impacts to riparian communities would not occur under Alternative 1 since application of the CMAs would require that riparian communities be avoided to the maximum extent feasible in DFAs. In addition, setbacks from riparian communities would be required that range from 200 feet for Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub to 0.25 mile for Southwestern North American riparian evergreen and deciduous woodland and Southwestern North American riparian/wash scrub.

Riparian communities include microphyll woodlands, which include groundwater-dependent vegetation (e.g., mesquite bosques). Under Alternative 1, conservation for microphyll woodland related natural communities would include: 71% of Madrean warm semi-desert wash woodland/scrub, 58% of Mojavean semi-desert wash scrub, and 74% of Sonoran-Coloradan semi-desert wash woodland/scrub.

Riparian communities provide habitat for the following Covered and Planning Species: California black rail, Gila woodpecker, Yuma clapper rail, Arizona Bell's vireo, least Bell's vireo, southwestern willow flycatcher, western yellow-billed cuckoo, Swainson's hawk, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, burro deer, and Tehachapi slender salamander. In addition, species associated with desert scrub are also associated with Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub. Conservation of riparian communities would benefit these species. Riparian communities also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-50 in Section IV.7.3.2.1. Furthermore, there are also CMAs to avoid impacts to riparian species including pre-construction nesting bird surveys for riparian and wetland bird Covered Species.

Wetlands

Overall, approximately 454,000 acres (52%) of wetland communities would be conserved under Alternative 1. About half of the conserved acreage would occur in the Panamint Death Valley and West Mojave and Eastern Slopes subareas with the remaining conserved

acreage distributed throughout the remaining subareas. As the most prevalent wetland natural communities in the Plan Area, conservation of North American warm desert alkaline scrub and herb playa and wet flat and Southwestern North American salt basin and high marsh account for the majority of the conservation of riparian communities. Most of the conservation of wetland communities would occur in BLM LUPA conservation designations. In addition to conservation of wetland communities, Arid West freshwater emergent marsh and Californian warm temperate marsh/seep would be avoided under Alternative 1 since application of the CMAs would require that these communities be avoided to the maximum extent feasible in DFAs, including a 0.25-mile setback. Also, CMAs for North American warm desert alkaline scrub and herb playa and wet flat, southwestern North American salt basin and high marsh, and other undifferentiated wetland-related land covers (i.e., "Playa", "Wetland", and "Open Water") would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided riparian or wetland natural communities.

Wetland communities provide habitat for the following Covered Species: California black rail, Yuma clapper rail, California leaf-nosed bat, pallid bat, Townsend's big-eared bat, desert pupfish, Mohave tui chub, Owens pupfish, and Owens tui chub. In addition, species associated with desert scrub are also associated with Southwestern North American Salt Basin and High Marsh. Conservation of wetland communities would benefit these species. Wetland communities also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-50 in Section IV.7.3.2.1. Furthermore, there are also CMAs to avoid impacts to wetland species including pre-construction nesting bird surveys for riparian and wetland bird.

Table IV.7-110
Plan-Wide Conservation Analysis for Natural Communities – Alternative 1

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
California forest and woodland						
Californian broadleaf forest and woodland	72,000	1,000	18,000	800	21,000	29%
Californian montane conifer forest	78,000	25,000	16,000	2,000	42,000	54%
Chaparral and coastal scrub community (Cismontane scrub)						
Californian mesic chaparral	4,000	20	600	200	900	22%
Californian pre-montane chaparral	1,000	0	400	10	500	36%
Californian xeric chaparral	24,000	3,000	1,000	3,000	7,000	28%
Central and south coastal California seral scrub	1,000	0	10	50	70	5%
Central and South Coastal Californian coastal sage scrub	54,000	2,000	8,000	4,000	14,000	26%
Western Mojave and Western Sonoran Desert borderland chaparral	24,000	9,000	200	800	10,000	43%
Desert conifer woodlands						
Great Basin Pinyon - Juniper Woodland	287,000	159,000	16,000	12,000	187,000	65%
Desert outcrop and badlands						
North American warm desert bedrock cliff and outcrop	1,613,000	802,000	484,000	12,000	1,299,000	80%

Table IV.7-110
Plan-Wide Conservation Analysis for Natural Communities – Alternative 1

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Desert Scrub						
Arizonan upland Sonoran desert scrub	57,000	44,000	2,000	800	47,000	82%
Intermontane deep or well-drained soil scrub	106,000	30,000	51,000	2,000	83,000	78%
Intermontane seral shrubland	74,000	1,000	5,000	3,000	9,000	12%
Inter-Mountain Dry Shrubland and Grassland	437,000	110,000	123,000	8,000	241,000	55%
Intermountain Mountain Big Sagebrush Shrubland and steppe	76,000	9,000	19,000	900	29,000	38%
Lower Bajada and Fan Mojavean - Sonoran desert scrub	10,858,000	4,561,000	3,367,000	173,000	8,101,000	75%
Mojave and Great Basin upper bajada and toeslope	1,333,000	838,000	204,000	22,000	1,063,000	80%
Shadscale - saltbush cool semi-desert scrub	279,000	38,000	64,000	18,000	119,000	43%
Southern Great Basin semi-desert grassland	100	0	40	0	40	35%
Dunes						
North American warm desert dunes and sand flats	282,000	146,000	63,000	5,000	214,000	76%
Grassland						
California Annual and Perennial Grassland	230,000	23,000	19,000	12,000	55,000	24%

Table IV.7-110
Plan-Wide Conservation Analysis for Natural Communities – Alternative 1

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
California annual forb/grass vegetation	8,000	400	900	1,000	2,000	30%
Riparian						
Madrean Warm Semi-Desert Wash Woodland/Scrub	697,000	195,000	292,000	7,000	494,000	71%
Mojavean semi-desert wash scrub	30,000	7,000	9,000	2,000	18,000	58%
Riparian	600	20	0	300	300	56%
Sonoran-Coloradan semi-desert wash woodland/scrub	191,000	70,000	68,000	3,000	141,000	74%
Southwestern North American riparian evergreen and deciduous woodland	6,000	500	600	2,000	3,000	43%
Southwestern North American riparian/wash scrub	66,000	7,000	9,000	7,000	23,000	35%
Wetland						
Arid West freshwater emergent marsh	4,000	40	200	1,000	1,000	32%
Californian warm temperate marsh/seep	400	0	0	80	80	20%
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	310,000	136,000	75,000	2,000	213,000	69%
Open Water	209,000	23,000	1,000	24,000	48,000	23%
Playa	78,000	400	35,000	300	36,000	46%

Table IV.7-110
Plan-Wide Conservation Analysis for Natural Communities – Alternative 1

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Southwestern North American salt basin and high marsh	261,000	31,000	114,000	10,000	155,000	59%
Wetland	8,000	30	200	500	700	9%
Other Land Cover						
Agriculture	711,000	6,000	4,000	4,000	14,000	2%
Developed and Disturbed Areas	447,000	3,000	3,000	300	7,000	2%
Not Mapped	7,000	200	300	300	800	12%
Rural	114,000	900	4,000	8,000	13,000	11%
Total	**19,040,000**	**7,279,000**	**5,079,000**	**351,000**	**12,709,000**	**67%**

1 Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs).

2 Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), which includes BLM and non-BLM inholdings within the designation.

3 Conservation Planning Areas include areas of the reserve design from which reserve areas would be assembled on private and other public land.

Notes: Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Covered Species Habitat

Table IV.7-111 shows the Plan-wide conservation of Covered Species modeled habitat under the Alternative 1 (before the application of CMAs). Generally, the percent conservation of Covered Species modeled habitat in available lands is highly variable, ranging from 1% for greater sandhill crane (primarily found in agricultural areas) to 83% for bighorn sheep mountain habitat.

Conservation percentages are in large part related to the location and types of habitat modeled for the Covered Species. For example, modeled habitat for greater sandhill crane, which is primarily freshwater wetland and agriculture, is limited to the Palo Verde and Imperial valleys and is mostly within DFAs.

Much of the modeled habitats for desert tortoise and Mojave fringe-toed lizard are in the Mojave Desert in areas that are either already in Existing Conservation or occur in the BLM LUPA conservation designations. Flat-tailed horned lizard modeled habitat is only conserved in the Imperial Borrego Valley, mostly in BLM LUPA conservation designations. Tehachapi slender salamander modeled habitat occurs in the Tehachapi Mountains where conservation is primarily composed of BLM LUPA conservation designations. Furthermore, the siting of the DFAs under Alternative 1 largely avoids habitat for Mojave fringe-toed lizard and Tehachapi slender salamander, and CMAs require avoidance of and setbacks from riparian habitat, wetland habitat, and dune habitat would further avoid and minimize the impacts on these species.

Conservation of bird species associated primarily with wetland and riparian habitats, including California black rail, least Bell's vireo, southwestern willow flycatcher, tricolored blackbird, western yellow-billed cuckoo, and Yuma clapper rail would be augmented by CMAs requiring avoidance of and setbacks from riparian and wetland habitats. Conservation of modeled suitable habitat for Bendire's thrasher occurs in every subarea of the Plan Area, but is mainly in existing conservation areas. Burrowing owl, widespread, but mainly associated with open areas in the West Mojave and Eastern Slopes and agricultural areas in the Imperial Borrego Valley, would primarily be conserved in the same subareas and most of the conservation would occur in BLM LUPA conservation designations.

California condor mainly occurs in the West Mojave and Eastern Slopes subarea so the majority of conservation is also in this subarea with most of the conserved acreage in BLM LUPA conservation designations. Golden eagle modeled suitable habitat and associated conservation is widespread in the Plan Area with most of the conservation in existing conservation areas. Swainson's hawk is primarily associated with the West Mojave and Eastern Slopes, Imperial Borrego Valley, and Owens River Valley subareas; of these subareas, the greatest proportion of suitable habitat is conserved in the Owens River Valley

subarea at about 26% conservation. In addition to conservation of suitable habitat, CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs.

Most of the modeled suitable habitat for Gila woodpecker is conserved in the Imperial Borrego Valley in BLM LUPA conservation designations. Conservation of mountain plover suitable habitat is mostly in BLM LUPA conservation designations and Conservation Planning Areas in the West Mojave and Eastern Slopes subarea.

Conservation of suitable habitat for desert pupfish and Mohave tui chub is mostly in existing conservation areas. Although conservation of desert pupfish is relatively low especially in the Imperial Borrego Valley subarea, avoidance and setback provisions for managed wetlands and agricultural drains would conserve wetland and riparian features within the agricultural matrix and provide conservation benefits to desert pupfish. Suitable habitat for Owens pupfish and Owens tui chub are conserved primarily in Conservation Planning Areas in the Owens River Valley subarea.

Conservation of suitable habitat for bighorn sheep, both inter-mountain and mountain habitat, is widespread and is mainly in existing conservation areas. The siting of the DFAs under Alternative 1 largely avoid habitat for bighorn sheep. At least half of the conservation of burro deer and Mojave ground squirrel suitable habitat is from BLM LUPA conservation designations and almost half of the conservation of desert kit fox is from BLM LUPA conservation designations. Suitable habitat for the covered bat species—California leaf-nosed bat, pallid bat, and Townsend's big-eared bat—is widespread and mainly conserved in existing conservation areas. In addition to conservation of suitable habitat for mammal Covered Species, the CMAs require avoidance of and setbacks from riparian and wetland habitat that would reduce impacts on these habitats used by Mohave ground squirrel, California leaf-nosed bat, pallid bat, and Townsend's big-eared bat.

Conservation of plant species ranges from 7% of suitable habitat for alkali mariposa-lily to 74% of suitable habitat for Mojave monkeyflower. The proportion of suitable habitat conserved in existing conservation, BLM LUPA conservation designations, and Conservation Planning Areas varies by species. However, in addition to the conservation of modeled suitable habitat, the CMAs require surveys for plant Covered Species for all Covered Activities, and the CMAs requiring avoidance of and setbacks from occupied habitat would further reduce the impacts on these species.

In addition to conservation of suitable habitat for Covered Species, compensation CMAs would offset habitat loss for all Covered Species.

Table IV.7-111
Plan-Wide Conservation Analysis for Covered Species Habitat– Alternative 1

Species	Available Lands (acres)	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Amphibian/Reptile						
Agassiz's desert tortoise	9,858,000	3,711,000	3,397,000	188,000	7,296,000	74%
Flat-tailed horned lizard	758,000	151,000	273,000	4,000	427,000	56%
Mojave fringe-toed lizard	1,094,000	403,000	420,000	11,000	834,000	76%
Tehachapi slender salamander	48,000	300	13,000	700	14,000	29%
Bird						
Bendire's thrasher	2,141,000	1,196,000	423,000	28,000	1,646,000	77%
Burrowing owl	5,269,000	479,000	1,277,000	196,000	1,951,000	37%
California black rail	197,000	21,000	13,000	6,000	40,000	20%
California condor	1,240,000	81,000	183,000	56,000	320,000	26%
Gila woodpecker	106,000	10,000	24,000	2,000	36,000	34%
Golden eagle–foraging	10,747,000	5,518,000	3,026,000	110,000	8,654,000	81%
Golden eagle–nesting	4,443,000	2,689,000	861,000	42,000	3,592,000	81%
Greater sandhill crane	617,000	6,000	2,000	1,000	9,000	1%
Least Bell's vireo	226,000	86,000	36,000	17,000	139,000	61%
Mountain plover	828,000	7,000	6,000	15,000	28,000	3%
Southwestern willow flycatcher	317,000	18,000	34,000	18,000	69,000	22%
Swainson's hawk	1,455,000	24,000	64,000	70,000	157,000	11%
Tricolored blackbird	271,000	11,000	9,000	18,000	38,000	14%
Western yellow-billed cuckoo	152,000	15,000	11,000	23,000	49,000	32%
Yuma clapper rail	51,000	10,000	2,000	2,000	13,000	26%

Table IV.7-111
Plan-Wide Conservation Analysis for Covered Species Habitat– Alternative 1

Species	Available Lands (acres)	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Fish						
Desert pupfish	8,000	900	300	300	1,000	18%
Mohave tui chub	300	200	-	20	200	79%
Owens pupfish	18,000	600	1,000	4,000	5,000	31%
Owens tui chub	17,000	700	1,000	4,000	5,000	31%
Mammal						
Bighorn sheep – inter-mountain habitat	3,854,000	1,904,000	1,109,000	24,000	3,037,000	79%
Bighorn sheep – mountain habitat	6,649,000	4,085,000	1,388,000	57,000	5,530,000	83%
California leaf-nosed bat	7,132,000	3,138,000	2,386,000	57,000	5,581,000	78%
Mohave ground squirrel	2,383,000	216,000	845,000	152,000	1,213,000	51%
Pallid bat	16,411,000	6,836,000	4,760,000	281,000	11,876,000	72%
Townsend's big-eared bat	14,677,000	5,879,000	4,208,000	273,000	10,360,000	71%
Plant						
Alkali mariposa-lily	119,000	200	800	8,000	9,000	7%
Bakersfield cactus	278,000	20,000	63,000	12,000	96,000	34%
Barstow woolly sunflower	154,000	3,000	85,000	12,000	100,000	65%
Desert cymopterus	205,000	7,000	81,000	17,000	105,000	51%
Little San Bernardino Mountains linanthus	289,000	87,000	42,000	5,000	134,000	46%
Mojave monkeyflower	161,000	27,000	93,000	200	120,000	74%
Mojave tarplant	265,000	48,000	91,000	8,000	147,000	56%
Owens Valley checkerbloom	147,000	13,000	8,000	18,000	39,000	26%

Table IV.7-111
Plan-Wide Conservation Analysis for Covered Species Habitat– Alternative 1

Species	Available Lands (acres)	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Parish's daisy	188,000	82,000	45,000	2,000	128,000	68%
Triple-ribbed milk-vetch	8,000	5,000	10	400	5,000	71%

1 Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs).

2 Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), which includes BLM and non-BLM inholdings within the designation.

3 Conservation Planning Areas include areas of the reserve design from which reserve areas would be assembled on private and other public land.

Notes: Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For Agassiz's desert tortoise, desert tortoise important areas were identified that include tortoise conservation areas (TCAs), desert tortoise linkages, and desert tortoise high priority habitat (see desert tortoise BGOs in Appendix C). Table IV.7-112 provides a conservation analysis for these desert tortoise important areas, organized by desert tortoise Recovery Units: Colorado Desert, Eastern Mojave, and Western Mojave. Within the Colorado Desert Recovery Unit, 88% of TCAs, linkage habitat, and high priority habitat would be conserved under Alternative 1. Within the Eastern Mojave Recovery Unit, 91% of the important areas would be conserved Alternative 1. Within the Western Mojave Recovery Unit, 77% of TCAs and linkage habitat would be conserved under Alternative 1. CMAs would require avoidance of TCAs, except for impacts associated with transmission or impacts in disturbed portions of TCAs. Additionally, the CMAs would prohibit impacts that affect the viability of desert tortoise linkages. Compensation CMAs would be required for impacts to desert tortoise, including desert tortoise important areas.

Table IV.7-112
Plan-Wide Conservation Analysis for Desert Tortoise Important Areas – Alternative 1

Recovery Unit	Desert Tortoise Important Areas	Available Lands (acres)	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Colorado Desert	High Priority Habitat	387,000	157,000	149,000	3,000	309,000	80%
	Linkage	469,000	126,000	260,000	4,000	389,000	83%
	TCA	3,130,000	1,544,000	1,234,000	15,000	2,793,000	89%
Colorado Desert Total		*3,985,000*	*1,827,000*	*1,643,000*	*22,000*	*3,491,000*	*88%*
Eastern Mojave	Linkage	784,000	421,000	257,000	7,000	685,000	87%
	TCA	2,096,000	1,758,000	170,000	10,000	1,938,000	92%
Eastern Mojave Total		*2,880,000*	*2,179,000*	*427,000*	*16,000*	*2,623,000*	*91%*
Western Mojave	Linkage	1,204,000	391,000	276,000	23,000	691,000	57%
	TCA	2,313,000	1,061,000	947,000	4,000	2,012,000	87%
Western Mojave Total		*3,517,000*	*1,452,000*	*1,223,000*	*27,000*	*2,702,000*	*77%*
Grand Total		**10,382,000**	**5,458,000**	**3,293,000**	**66,000**	**8,817,000**	**85%**

1 Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs).

2 Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), which includes BLM and non-BLM inholdings within the designation.

3 Conservation Planning Areas include areas of the reserve design from which reserve areas would be assembled on private and other public land.

Notes: Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000;

values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For Mohave ground squirrel, Mohave ground squirrel important areas were identified that include key population centers, linkages, expansion areas, and climate change extension areas (see Mohave ground squirrel BGOs in Appendix C). Table IV.7-113 provides a conservation analysis for these Mohave ground squirrel important areas. Approximately 72% of key populations centers and 68% of linkages would be conserved under Alternative 1. Expansion areas and climate change extension areas would be conserved at 72% and 46% respectively. The CMAs would prohibit impacts that affect the viability of linkages. Compensation CMAs would be required for impacts to Mohave ground squirrel, including Mohave ground squirrel important areas.

Table IV.7-113
Plan-Wide Conservation Analysis for Mohave Ground Squirrel Important Areas – Alternative 1

Mohave Ground Squirrel Important Area Type	Available Lands (acres)	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Key Population Center	507,000	47,000	292,000	29,000	367,000	72%
Linkage	386,000	30,000	205,000	27,000	262,000	68%
Expansion Area	552,000	77,000	268,000	53,000	398,000	72%
Climate Change Extension	224,000	28,000	52,000	24,000	104,000	46%
Total	**1,669,000**	**181,000**	**817,000**	**132,000**	**1,131,000**	**68%**

[1] Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs).

[2] Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), which includes BLM and non-BLM inholdings within the designation.

[3] Conservation Planning Areas include areas of the reserve design from which reserve areas would be assembled on private and other public land.

Notes: Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Within the Plan Area, critical habitat has been designated by the USFWS for the following Covered Species: desert tortoise, southwestern willow flycatcher, desert pupfish, and Parish's daisy. For desert tortoise, approximately 87% of the desert tortoise designated critical habitat would be conserved in Reserve Design Lands under Alternative 1, including 1,517,000 acres in existing conservation areas, 2,090,000 acres in BLM LUPA conservation designations, and 14,000 acres in Conservation Planning Areas. For southwestern willow flycatcher, approximately 63% of the southwestern willow flycatcher designated critical habitat would be conserved in Reserve Design Lands under Alternative 1, including 900 acres in existing conservation areas, 70 acres in BLM LUPA conservation designations, and 3,000 acres in Conservation Planning Areas. For desert pupfish, approximately 88% of the desert pupfish designated critical habitat would be conserved in Reserve Design Lands under Alternative 1, including 100 acres in existing conservation areas and 500 acres in BLM LUPA conservation designations. For Parish's daisy, approximately 70% of the Parish's daisy designated critical habitat would be conserved in Reserve Design Lands under Alternative 1, including 1,000 acres in BLM LUPA conservation designations.

Non-Covered Species Critical Habitat

Ten Non-Covered Species have Critical Habitat within the Plan Area. Table IV.7-114 shows the total amount of Critical Habitat and the amount within each Plan Wide reserve designation for Non-Covered Species. These reserve designations are considered beneficial impacts for biological resources. All or a substantial portion of each species' Critical Habitat would be within the Reserve Design Lands and within the BLM conservation designations for most species. Critical Habitat for bighorn sheep is predominately within existing conservation and for arroyo toad it would mostly be within Conservation Planning Areas. Critical Habitat for the Pierson's milk-vetch is managed under the Imperial Sand Dunes Recreation Area Management Plan (RAMP), which provides protections for critical habitat within conservation areas and areas designated as closed to motorized (e.g. off-highway vehicle) use.

Table IV.7-114
Critical Habitat within Plan-Wide Reserve Design for Non-Covered Species – Alternative 1

Common Name	Acres of Critical Habitat within the DRECP	Acres of Critical Habitat in Existing Conservation	Acres of Critical Habitat in BLM Conservation Designations	Acres of Critical Habitat in Conservation Planning Areas	Acres in Conservation
Amargosa nitrophila	1,000	0	1,000	0	1,000
Amargosa vole	5,000	1,000	3,000	0	4,000
Arroyo toad	4,000	0	20	3,000	3,020
Ash Meadows gumplant	300	0	300	0	300
Cushenbury buckwheat	600	0	600	0	600
Cushenbury milk-vetch	1,000	0	1,000	0	1,000
Cushenbury oxytheca	100	0	100	0	100
Lane Mountain milk-vetch	14,000	3,000	11,000	0	14,000
Pierson's milk-vetch	12,000	3,000	9,000[2]	400	12,000
Peninsular Bighorn sheep	47,000	41,000	400	300	41,700

[1] NLCS and ACEC designations overlap, the entire Amargosa Valley, which contains the Amargosa vole critical habitat, is located within an ACEC.

[2] Pierson's milk-vetch are protected within areas designated as closed to motorized vehicles in the Imperial Sand Dunes RAMP. The ISDRA RAMP is not considered part of the DRECP decision area.

IV.7.3.3.2 Impacts of DRECP Land Use Plan Amendment on BLM Land: Alternative 1

This section addresses two components of effects of the BLM LUPA: the streamlined development of renewable energy and transmission on only BLM land under the LUPA, and the impacts of the amended land use plans themselves.

IV.7.3.3.2.1 Impacts from Renewable Energy and Transmission Development on BLM Land

On BLM lands under the LUPA, Alternative 1 includes DFAs (81,000 acres) and transmission corridors where approximately 31,000 acres of ground disturbance related impacts and operational impacts would occur.

Impact BR-1: Siting, construction, decommissioning, and operational activities would result in loss of native vegetation.

Table IV.7-115 shows the impacts to natural communities under Alternative 1 on BLM Land. An effects summary by general community is provided below in relation to the Plan-wide effects analysis provided in Section IV.7.3.3.1.1. Appendix R2 provides a detailed analysis of natural community effects by ecoregion subarea.

<u>California forest and woodlands</u>

Overall, approximately 40 acres (0.1%) of California forest and woodlands would be impacted under Alternative 1 on BLM Land, about the same as the Plan-wide effects. All of this impact would be from transmission effects in the Pinto Lucerne Valley and Eastern Slopes subarea. The same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied on BLM Land with implementation of the BLM LUPA. This includes CMAs that address roosting covered bat species (AM-DFA-BAT-1), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

<u>Chaparral and coastal scrubs (Cismontane scrub)</u>

Overall, approximately 200 acres (1.3%) of chaparral and coastal scrubs would be impacted under Alternative 1 on BLM Land, which is approximately one-fifth of the Plan-wide effects to this general community. All of the impacts to chaparral and coastal scrubs would be in the Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas from solar, wind, and transmission development. The same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied on BLM Land with implementation of the BLM LUPA. This includes CMAs that

address breeding, nesting, or roosting species (AM-DFA-BAT-1, AM-DFA-PLANT-1 through AM-DFA-PLANT-3, and AM-RES-BLM-PLANT-1), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

Desert conifer woodlands

Overall, approximately 200 acres (0.5%) of desert conifer woodlands would be impacted under Alternative 1 on BLM Land, which is approximately one-fifth of the Plan-wide effects. Most of the impacts to desert conifer woodlands would be from solar development in the Pinto Lucerne Valley and Eastern Slopes subarea. The same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied on BLM Land with implementation of the BLM LUPA. This includes CMAs that address roosting covered bat species (AM-DFA-BAT-1), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

Desert outcrop and badlands

Overall, approximately 3,000 acres (0.2%) of desert outcrop and badlands would be impacted under Alternative 1 on BLM Land, which constitutes approximately three-fifths of the Plan-wide effects. Most of these impacts would occur in the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas. The same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied on BLM Land with implementation of the BLM LUPA. This includes CMAs that address breeding, nesting, or roosting species (AM-DFA-BAT-1), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

Desert scrubs

Overall, approximately 27,000 acres (0.4%) of desert scrubs would be impacted under Alternative 1 on BLM Land, which is about a third of the Plan-wide effects. Most of these impacts would occur in the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas. The same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied on BLM Land with implementation of the BLM LUPA. These include avoidance, setbacks, and/or suitable habitat impact caps for desert tortoise (AM-DFA-ICS-7 and AM-DFA-ICS-9 through AM-DFA-ICS-11), Mohave ground squirrel (AM-DFA-ICS-38 and AM-RES-BLM-ICS-8), bat Covered Species (AM-DFA-BAT-1), and plant Covered Species (AM-DFA-PLANT-1 through AM-DFA-PLANT-3 and AM-RES-BLM-

PLANT-1). Furthermore, soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) CMAs would be implemented that would help avoid and minimize these effects and compensation CMAs would offset the effect (COMP-1 and COMP-2).

Dunes

Application of the CMAs would require avoidance of dune communities to the maximum extent feasible in DFAs so there would be no impacts to dunes under BLM LUPA. In addition, the same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied on BLM Land with implementation of the BLM LUPA. This includes CMAs for dune avoidance and minimization (AM-DFA-DUNE-1 through AM-DFA-DUNE-3, AM-RES-BLM-DUNE-1, and AM-RES-BLM-DUNE-2) as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

Grasslands

Overall, approximately 200 acres (0.6%) of grasslands would be impacted under Alternative 1 on BLM Land, which is only about 3% of the Plan-wide effects. The majority of these impacts are from transmission effects in the Pinto Lucerne Valley and Eastern Slopes subarea. There would also be transmission effects in the Cadiz Valley and Chocolate Mountains and West Mojave and Eastern Slopes subareas, as well as impacts from solar development in these two subareas. The same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied on BLM Land with implementation of the BLM LUPA. This includes CMAs that address breeding, nesting, or roosting species (AM-DFA-AG-2), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

Riparian

Application of the CMAs would require avoidance of riparian communities to the maximum extent feasible in DFAs so there would be no impacts to riparian communities under BLM LUPA. In addition, the same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied on BLM Land with implementation of the BLM LUPA. This includes CMAs for avoidance and minimization from riparian habitat and the Covered Species associated with riparian habitat (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9) as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

Wetlands

Overall, approximately 200 acres (0.1%) of wetlands would be impacted under Alternative 1 on BLM Land, which is only about 2% of the Plan-wide effects. Impacts would be primarily to North American warm desert alkaline scrub and herb playa and wet flat. Impacts would occur in the Mojave and Silurian Valley, Pinto Lucerne Valley and Eastern Slopes, Providence and Bullion Mountains, Cadiz Valley and Chocolate Mountains, and West Mojave and Eastern Slopes subareas. The same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied on BLM Land with implementation of the BLM LUPA, including avoidance of Arid West freshwater emergent marsh and Californian warm temperate marsh/seep (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9) as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

Table IV.7-115
BLM LUPA Impact Analysis for Natural Communities – Alternative 1

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
California forest and woodland						
Californian broadleaf forest and woodland	11,000	0	0	0	0	0
Californian montane conifer forest	34,000	0	0	0	40	40
Chaparral and coastal scrub community (Cismontane scrub)						
Californian mesic chaparral	500	0	0	0	0	0
Californian pre-montane chaparral	300	0	0	0	0	0
Californian xeric chaparral	5,000	0	0	0	10	10
Central and south coastal California seral scrub	20	0	0	0	0	0
Central and South Coastal Californian coastal sage scrub	13,000	200	10	0	40	200
Western Mojave and Western Sonoran Desert borderland chaparral	200	0	0	0	0	0

Table IV.7-115
BLM LUPA Impact Analysis for Natural Communities – Alternative 1

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Desert conifer woodlands						
Great Basin Pinyon - Juniper Woodland	50,000	200	10	0	50	200
Desert outcrop and badlands						
North American warm desert bedrock cliff and outcrop	1,203,000	700	10	60	2,000	3,000
Desert Scrub						
Arizonan upland Sonoran desert scrub	3,000	0	0	0	0	0
Intermontane deep or well-drained soil scrub	69,000	90	10	0	50	100
Intermontane seral shrubland	5,000	70	0	0	10	90
Inter-Mountain Dry Shrubland and Grassland	282,000	3,000	0	0	1,000	4,000
Intermountain Mountain Big Sagebrush Shrubland and steppe	24,000	0	0	0	0	0
Lower Bajada and Fan Mojavean - Sonoran desert scrub	6,114,000	9,000	200	4,000	8,000	22,000
Mojave and Great Basin upper bajada and toeslope	406,000	400	20	0	200	700
Shadscale - saltbush cool semi-desert scrub	101,000	20	0	10	300	300
Southern Great Basin semi-desert grassland	50	0	0	0	0	0
Dunes						
North American warm desert dunes and sand flats	127,000	0	0	0	0	0
Grassland						
California Annual and Perennial Grassland	28,000	20	0	0	200	200

Table IV.7-115
BLM LUPA Impact Analysis for Natural Communities – Alternative 1

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
California annual forb/grass vegetation	1,000	0	0	0	0	0
Riparian						
Madrean Warm Semi-Desert Wash Woodland/Scrub	502,000	0	0	0	0	0
Mojavean semi-desert wash scrub	11,000	0	0	0	0	0
Sonoran-Coloradan semi-desert wash woodland/scrub	122,000	0	0	0	0	0
Southwestern North American riparian evergreen and deciduous woodland	400	0	0	0	0	0
Southwestern North American riparian/wash scrub	10,000	0	0	0	0	0
Madrean Warm Semi-Desert Wash Woodland/Scrub	502,000	0	0	0	0	0
Wetland						
Arid West freshwater emergent marsh	10	0	0	0	0	0
Californian warm temperate marsh/seep	0	0	0	0	0	0
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	147,000	30	0	0	100	200
Open Water	700	0	0	0	0	0
Playa	26,000	0	0	0	0	0
Southwestern North American salt basin and high marsh	122,000	20	0	0	40	60
Wetland	100	0	0	0	0	0

Table IV.7-115
BLM LUPA Impact Analysis for Natural Communities – Alternative 1

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Other Land Cover – Developed and Disturbed Areas						
Agriculture	6,000	30	0	10	200	200
Developed and Disturbed Areas	44,000	20	0	10	100	200
Not Mapped	800	0	0	0	0	0
Rural	3,000	20	0	20	50	90
Total	**9,471,000**	**14,000**	**200**	**4,000**	**12,000**	**31,000**

1 Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
2 Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Rare natural community alliances could be impacted under Alternative 1 on BLM lands, including impacts to Joshua tree woodland. CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection that would help avoid and minimize these effects on rare natural communities. Additionally, AM-DFA-ONC-1 and -2 would require inventorying and preserving or transplanting cactus, yuccas, and succulents. While the compensation CMAs would offset the lost habitat acreage of these impacts, the compensation CMAs do not specifically require the replacement of or mitigation for specific rare natural community alliances. After application of the CMAs, impacts to rare natural communities from Alternative 1 would be adverse and would require mitigation.

Impact BR-2: Siting, construction, decommissioning, and operational activities would result in adverse effects to jurisdictional waters and wetlands.

Siting, construction, decommissioning, and operations of Covered Activities have the potential to result in adverse effects to federal or state jurisdictional waters and wetlands. In the Plan Area, jurisdictional waters and wetlands would likely include the riparian and wetland communities analyzed under Impact BR-1 and may also include other features including playas, seeps/springs, major rivers, and ephemeral drainage networks.

All Covered Activities would be required to comply with existing, applicable federal and state laws and regulations related to jurisdictional waters and wetlands. Additionally, all impacts to riparian communities would be avoided under Alternative 1 through application of the riparian CMAs including riparian setbacks. All impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep wetlands, except those impacts determined to be unavoidable, would be avoided under Alternative 1 through application of the wetland CMAs, including wetland setbacks (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). Approximately 200 acres of other wetland communities would be impacted under Alternative 1. See the analysis for the loss of native vegetation provided under BR-1 for a discussion of these potential impacts. All or a portion of the estimated wetland impacts could result in adverse effects to jurisdictional waters and wetlands without compensation. Compensation CMAs would offset impacts determined to be unavoidable.

Additionally, playas, seeps/springs, major rivers, and ephemeral drainage networks are waters and wetland features that provide hydrological functions and may be determined to be jurisdictional waters and wetlands. Adverse effects to these features would have the potential to impact jurisdictional waters and wetlands.

Playa

Less than 1% (200 acres) of playa would be impacted by Covered Activities under Alternative 1 on BLM land. Impacts would be associated with solar (50 acres), with 1 acre of wind impacts, and 100 acres of transmission impacts. Ecoregion subareas of potential impacts to playas include the Cadiz Valley and Chocolate Mountains, Mojave and Silurian Valley, Owens River Valley, Pinto Lucerne Valley and Eastern Slopes, and Providence and Bullion Mountains subareas.

Avoidance of impacts to wetland communities including playas would benefit Covered Species that utilize these communities. In addition, application of species-specific CMAs would help avoid and minimize impacts to species associated with playas (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). CMAs would also require compliance with all applicable laws and regulations pertaining to wetlands and waters, including playas (AM-PW-9 and AM-LL-2). Compensation CMAs would offset impacts to these features (COMP-1 and COMP-2).

Seep/Spring

Seeps occur within DFAs and transmission corridors and potential impacts to seep/spring have the potential to occur under Alternative 1 on BLM land in the following ecoregion subareas: Owens River Valley and Pinto Lucerne Valley and Eastern Slopes. Impacts to

seeps and springs would be adverse absent implementation of avoidance measures. Impacts to seep/spring locations and associated Covered Species and hydrological functions would be avoided through adherence to avoidance and minimization CMAs, including habitat assessments and avoidance of seeps with 0.25 mile setbacks (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). Compensation CMAs would offset impacts determined to be unavoidable (COMP-1 and COMP-2).

Major Rivers

Under Alternative 1 on BLM land, there would no direct impacts to any of the four major rivers within the Plan Area – Amargosa, Colorado, Mojave, and Owens Rivers. However, development of the DFAs could indirectly impact these resources through alteration of hydrology. Riparian CMAs would require avoidance of these features with setbacks (AM-DFA-RIPWET-1).

Ephemeral Drainages

Ephemeral drainages occur throughout the Plan Area, and some of these features could be determined to state or federal jurisdictional waters. Impacts to ephemeral drainages would likely occur from Covered Activities. Application of riparian avoidance CMAs (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9) would avoid and minimize impacts to a portion of the ephemeral drainages within DFAs. Additionally, all Covered Activities would be required to comply with existing, applicable federal and state laws and regulations related to jurisdictional waters and wetlands.

Impact BR-3: Siting, construction, decommissioning, and operational activities would result in degradation of vegetation.

Siting, construction, and operational Covered Activities would result in the degradation of vegetation through the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants. The degree to which these factors contribute to the degradation of vegetation corresponds to the distribution of Covered Activities on BLM Land that would result in dust, fire, and introduction of invasive plants or that would use dust suppressants and implement fire management. The propensity for vegetation to be at risk of degradation was determined by the overlap between natural community models and the likely distribution of Covered Activities across subareas on BLM Land.

Based on the planned renewable energy capacity, the greatest amount of terrestrial operational impacts on BLM Land would occur in the Imperial Borrego Valley subarea, as shown in Table IV.7-116. The Cadiz Valley and Chocolate Mountains, Owens River Valley, and Pinto Lucerne Valley and Eastern Slopes subareas would also experience

approximately prevalent amounts of terrestrial operational impacts on BLM Land. As a result, these subareas would have the greatest potential to degrade vegetation as a result in the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants.

Table IV.7-116
BLM LUPA Terrestrial Operational Impacts – Alternative 1

Ecoregion Subarea	Solar Impact (acres)[1]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total impact (acres)
Cadiz Valley and Chocolate Mountains	4,000	200	-	5,000	9,200
Imperial Borrego Valley	2,000	-	4,000	4,000	10,000
Kingston and Funeral Mountains	-	-	-	-	-
Mojave and Silurian Valley	-	-	-	900	900
Owens River Valley	4,000	-	-	1,000	5,000
Panamint Death Valley	-	-	-	-	-
Pinto Lucerne Valley and Eastern Slopes	2,000	400	-	1,000	3,400
Piute Valley and Sacramento Mountains	-	-	-	-	-
Providence and Bullion Mountains	300	-	-	400	700
West Mojave and Eastern Slopes	1,000	-	-	200	1,200
Total	**14,000**	**600**	**4,000**	**12,000**	**30,600**

[1] Solar impacts include ground-mounted distributed generation.

Notes: Terrestrial operational impacts collectively refers to vegetation degradation impacts (BR-3) from dust, dust suppressants, fire, fire management, and invasive plants and wildlife impacts (BR-4) from creation of noise, predator avoidance behavior, lighting and glare. For the purposes of analysis, terrestrial operational impacts were quantified using the project area extent for solar and geothermal, using 25% of the project area for wind, and the right-of-way area for transmission.

Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation, short-term and long-term wind (excluding project area impacts), geothermal project area, and transmission impacts. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Dust and Dust Suppressants

Natural communities, and in particular natural communities containing Mojave desert shrubs, are susceptible to vegetation degradation from dust. Impacts to these natural communities would mostly occur in the Imperial Borrego Valley subarea, but the Cadiz Valley and Chocolate Mountains subarea would also contain larger amounts of impacts. Plant Covered Species, that could also experience vegetation degradation from dust, would mainly be impacted by Covered Activities in the Pinto Lucerne Valley and Eastern Slopes and to a lesser extent the Owens River Valley subareas, which contain of the most impacts to plant Covered Species habitat on BLM Land. Therefore, considering the distribution of Covered Activities that would cause dust as well as the sensitive natural communities and plant Covered Species the Imperial Borrego Valley subarea would experience the greatest magnitude of vegetation degradation resulting from dust.

The application of dust suppressants is a common management practice, a Covered Activity under the Plan, and has been shown to effectively reduce dust. Dust-related degradation of vegetation would be further minimized with the incorporation of avoidance and minimization CMAs. The Plan-wide avoidance and minimization CMAs would generally identify vegetation in the project area (AM-PW-1), utilize standard practices to minimize the amount of exposed soils (AM-PW-14) and reduce dust caused by soil erosion (AM-PW-10). Additionally, Alternative 1 would implement CMAs that would identify and protect or salvage specific plant species, reducing their exposure to dust. Setbacks and suitable habitat impact caps would also be implemented for plant Covered Species in DFAs and in the reserve design envelope (AM-DFA-PLANT-1 through AM-DFA-PLANT-3).

Riparian and wetland natural communities would be susceptible to the adverse effects of dust suppressants including chemical and physical changes to an ecosystem, alter hydrological function of soils and drainage areas, and increase pollutant loads in surface water. These impacts occur in all of the same subareas as the Plan-wide analysis, but would impact fewer acres in each subarea. The largest amount of impacts from Covered Activities, which corresponds to the potential greatest magnitude of vegetation degradation from adverse dust suppressant effects, would be located in the Pinto Lucerne Valley and Eastern Slopes ecoregion subarea. Plant Covered Species that could also experience vegetation degradation from dust suppressants, would mainly be impacted by Covered Activities in the Pinto Lucerne Valley and Eastern Slopes subarea.

Avoidance and minimization CMAs implemented as part of Alternative 1, including AM-PW-9 and AM-PW-10, would utilize standard practices to reduce erosion and runoff of dust suppressant into sensitive vegetation. Setbacks and avoidance requirements for all riparian natural communities and some wetland natural communities that would be implemented

as part of the CMAs would minimize potential adverse effects of dust suppressants on these communities (AM-DFA-RIPWET-1).

Fire and Fire Management

Anthropogenic ignitions of fires that could result from operational and maintenance activities associated with renewable energy facilities could destroy the natural communities found in the Plan Area. Desert scrub natural communities are naturally slow to recover from fire episodes, which can lead to permanent community type conversion. On BLM Land, the impacts to desert scrub natural communities would mainly occur within the Imperial Borrego Valley and Cadiz Valley and Chocolate Mountains subareas.

Construction and maintenance of fire breaks and other fire management techniques would typically result in the removal of vegetation from woodland, chaparral, and grassland natural communities. However, fire management in the form of fuels management, may benefit natural habitats if conducted in areas of non-native, invasive, species infestations (e.g. salt ceder hot spots). Most of the impacts to California forest and woodlands, chaparral, and grassland natural communities would occur in the Pinto Lucerne Valley and Eastern Slopes subarea on BLM Land, under Alternative 1. These impacts from Covered Activities would correspond to the amount of potential vegetation degradation resulting from fire and fire management. Under Alternative 1 avoidance and minimization CMAs would be implemented to reduce the potential adverse effects of fire and fire management, including AM-PW-12 that would require projects to minimize the amount of vegetation clearing and fuel modification.

Invasive Plants

The adverse effects of invasive plants, include increasing the fuel load and the frequency of fires in plant communities and allelopathic effects that hinder the growth or establishment of other plant species. The natural communities and plant Covered Species found on BLM Land are generally at risk of adverse effects from the introduction of invasive plants. Therefore, the most vegetation degradation caused by introduction of invasive plants would occur in the Imperial Borrego Valley, Pinto Lucerne Valley and Eastern slopes, and Cadiz Valley and Chocolate Mountains subareas. Plant Covered Species found on BLM Land would also experience potential vegetation degradation as a result of Covered Activities. The Pinto Lucerne Valley and Eastern Slopes would have the largest amount of impacts to plant Covered Species on BLM Land.

Under Alternative 1 avoidance and minimization CMAs would be implemented to reduce vegetation degradation from invasive plants, including AM-PW-7 that would ensure the timely restoration of temporarily disturbed areas that could otherwise promote invasive

plants. Additional CMAs would use standard practices to control weeds and invasive plants (AM-PW-11) and require the responsible use of herbicides to minimize potential vegetation degradation (AM-PW-15) for all Covered Activities.

Impact BR-4: Siting, construction, decommissioning, and operational activities would result in loss of listed and sensitive plants; disturbance, injury, and mortality of listed and sensitive wildlife; and habitat for listed and sensitive plants and wildlife.

Impact BR-4 described at the Plan-wide level provides an impact analysis for Covered Species habitat by ecoregion subarea, specific Covered Species impact analyses, an indirect and terrestrial operational impact analysis for Covered Species, and a Non-Covered Species impact analysis. The following provides an impact analysis for Covered Species on BLM-administered lands. Most of the impacts to plant and wildlife species and their habitat under the BLM LUPA would occur in the Imperial Borrego Valley and Cadiz Valley and Chocolate Mountains subareas.

Covered Species Habitat Impact Analysis by Ecoregion Subarea

Cadiz Valley and Chocolate Mountains Ecoregion Subarea

Renewable energy development within the Cadiz Valley and Chocolate Mountains subarea would be primarily from solar energy and transmission development, but would also include impacts from wind. The Cadiz Valley and Chocolate Mountains subarea provides suitable habitat for amphibians and reptiles, including Agassiz's desert tortoise and Mojave fringe-toed lizard, that would be impacted. The siting of the DFAs under the BLM LUPA largely avoid habitat for Mojave fringe-toed lizard, and CMAs require avoidance of and setbacks from dune habitat (AM-DFA-DUNE-1 through AM-DFA-DUNE-3) would further avoid and minimize the impacts on this species to less than the acreage reported in Table IV.7-117. Compensation CMAs would offset habitat loss for these species.

Impacts would occur to the following covered bird species in this subarea: Bendire's thrasher, burrowing owl, Gila woodpecker, golden eagle, and mountain plover. Compensation CMAs would offset habitat loss for these species.

Suitable habitat for the following Covered mammals occurs in the Cadiz Valley and Chocolate Mountains subarea: bighorn sheep, California leaf-nosed bat, pallid bat, and Townsend's big-eared bat. Suitable habitat for desert kit fox and burro deer would also be impacted (Planning Species). The siting of the DFAs under the BLM LUPA largely avoid habitat for bighorn sheep. The CMAs require avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further reduce the impacts on these habitats used by California leaf-nosed bat, pallid bat, and Townsend's big-eared bat to

less than the acreage reported in Table IV.7-117. Compensation CMAs would offset habitat loss for these species.

No impacts to suitable habitat for covered plant species are expected to occur. In addition, the CMAs require surveys for plant Covered Species for all Covered Activities, and the CMAs requiring avoidance of and setbacks from occupied habitat (AM-DFA-PLANT-1 through AM-DFA-PLANT-3) would further reduce the impacts on this species to less than the acreage reported in Table IV.7-117. Compensation CMAs would offset habitat loss for these species.

Imperial Borrego Valley Ecoregion Subarea

Renewable energy development within the Imperial Borrego Valley subarea would be primarily from geothermal energy development, but would also include impacts from solar and transmission development. The Imperial Borrego Valley subarea provides suitable habitat for Agassiz's desert tortoise and flat-tailed horned lizard that would be impacted. The siting of the DFAs under the BLM LUPA largely avoid habitat for flat-tailed horned lizard, and CMAs require avoidance of and setbacks from dune habitat (AM-DFA-DUNE-1 through AM-DFA-DUNE-3) would further avoid and minimize the impacts on this species to less than the acreage reported in Table IV.7-117.

Impacts would occur to suitable habitat for the following covered bird species in this subarea: Bendire's thrasher, burrowing owl, California black rail, Gila woodpecker, golden eagle, greater sandhill crane, mountain plover, southwestern willow flycatcher, and Swainson's hawk. CMAs requiring avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further avoid and minimize the impacts on California black rail and southwestern willow flycatcher to less than the acreage reported in Table IV.7-117. CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs (AM-DFA-AG-2).

Only minimal impacts (approximately 100 acres) would occur to bighorn sheep mountain habitat in this subarea. Impacts to suitable habitat for other mammal Covered Species would occur for California leaf-nosed bat, pallid bat, and Townsend's big-eared bat. Impacts to suitable habitat for desert kit fox (Planning Species) would also occur in this subarea. The siting of the DFAs under the BLM LUPA largely avoid habitat for bighorn sheep. The CMAs require avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further reduce the impacts on these habitats used by California leaf-nosed bat, pallid bat, and Townsend's big-eared bat to less than the acreage reported in Table IV.7-117.

Table IV.7-117
BLM LUPA Impact Analysis for Covered Species Habitat – Alternative 1

Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Amphibian/Reptile						
Agassiz's desert tortoise	5,799,000	7,000	100	-	4,000	12,000
Flat-tailed horned lizard	428,000	2,000	-	4,000	3,000	10,000
Mojave fringe-toed lizard	731,000	2,000	40	-	2,000	3,000
Tehachapi slender salamander	7,000	-	-	-	-	-
Bird						
Bendire's thrasher	773,000	1,000	50	30	300	1,000
Burrowing owl	1,707,000	6,000	90	2,000	4,000	13,000
California black rail	31,000	100	-	200	200	500
California condor	242,000	600	-	-	200	900
Gila woodpecker	38,000	20	-	-	20	40
Golden eagle–foraging	6,216,000	6,000	90	10	5,000	11,000
Golden eagle–nesting	2,421,000	700	10	-	1,000	2,000
Greater sandhill crane	3,000	10	-	10	60	70
Least Bell's vireo	69,000	30	-	-	10	40
Mountain plover	7,000	50	-	-	80	100
Southwestern willow flycatcher	46,000	2,000	-	-	400	3,000
Swainson's hawk	112,000	2,000	-	10	400	2,000
Tricolored blackbird	13,000	10	-	-	40	50
Western yellow-billed cuckoo	19,000	10	-	-	10	10
Yuma clapper rail	5,000	-	-	-	-	-
Fish						
Desert pupfish	500	-	-	-	-	-
Owens pupfish	4,000	-	-	-	40	40
Owens tui chub	4,000	-	-	-	40	40

Table IV.7-117
BLM LUPA Impact Analysis for Covered Species Habitat – Alternative 1

Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Mammal						
Bighorn sheep – inter-mountain habitat	2,243,000	900	20	-	900	2,000
Bighorn sheep – mountain habitat	3,568,000	1,000	60	-	2,000	3,000
California leaf-nosed bat	4,444,000	5,000	90	2,000	6,000	14,000
Mohave ground squirrel	999,000	5,000	30	-	1,000	6,000
Pallid bat	8,943,000	13,000	200	4,000	12,000	29,000
Townsend's big-eared bat	7,599,000	12,000	200	4,000	10,000	27,000
Plant						
Alkali mariposa-lily	2,000	100	10	-	10	100
Bakersfield cactus	77,000	-	-	-	-	-
Barstow woolly sunflower	72,000	-	-	-	-	-
Desert cymopterus	67,000	-	-	-	-	-
Little San Bernardino Mountains linanthus	80,000	100	10	-	10	100
Mojave monkeyflower	116,000	20	-	-	100	100
Mojave tarplant	136,000	300	-	-	200	500
Owens Valley checkerbloom	55,000	10	-	-	200	200
Parish's daisy	85,000	1,000	60	-	100	1,000
Triple-ribbed milk-vetch	4,000	-	-	-	-	-

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
[2] Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The

following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Specific Covered Species Impact Analyses

For Agassiz's desert tortoise, desert tortoise important areas were identified that include tortoise conservation areas (TCAs), desert tortoise linkages, and desert tortoise high priority habitat (see desert tortoise BGOs in Appendix C). Table IV.7-118 provides an impact analysis for these desert tortoise important areas in the BLM LUPA area, organized by desert tortoise Recovery Units: Colorado Desert, Eastern Mojave, and Western Mojave. Within the Colorado Desert Recovery Unit, approximately 4,000 acres of TCAs, linkage habitat, and high priority habitat would be impacted under Alternative 1. Within the Eastern Mojave Recovery Unit, no habitat would be impacted under Alternative 1. Within the Western Mojave Recovery Unit, approximately 2,000 acres of TCAs and linkage habitat would be impacted under Alternative 1. CMAs would require avoidance of TCAs, except for impacts associated with transmission or impacts in disturbed portions of TCAs. Additionally, the CMAs would prohibit impacts that affect the viability of desert tortoise linkages (AM-DFA-ICS-1 and AM-DFA-ICS-3 through 15). Compensation CMAs would be required for impacts to desert tortoise, including desert tortoise important areas.

Table IV.7-118
BLM LUPA Impact Analysis for Desert Tortoise Important Areas – Alternative 1

Recovery Unit	Desert Tortoise Important Area	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Colorado Desert	High Priority Habitat	354,000	-	-	-	30	30
	Linkage	406,000	700	20	-	30	800
	TCA	1,728,000	100	-	-	3,000	3,000
Colorado Desert Total		*2,488,000*	*800*	*20*	-	*3,000*	*4,000*
Eastern Mojave	Linkage	728,000	-	-	-	-	-
	TCA	239,000	-	-	-	-	-
Eastern Mojave Total		*967,000*	-	-	-	-	-
Western Mojave	Linkage	796,000	700	20	-	400	1,000
	TCA	964,000	-	-	-	1,000	1,000
Western Mojave Total		*1,759,000*	*700*	*20*	-	*1,000*	*2,000*
Total		**5,215,000**	**2,000**	**40**	**-**	**5,000**	**6,000**

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

[2] Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For golden eagle, a territory-based analysis was conducted (see methods and results in the Chapter IV.7 portion of Appendix R2). Using the golden eagle nest database, golden eagle territories were identified and individually buffered by 1 mile (representing breeding areas around known nests) and 4 miles (representing use areas around known nests). A total of 148 territories occur wholly or partially within the BLM LUPA area. Under Alternative 1, 27 territories have DFAs or transmission corridors within 1 mile of a nest. Implementation of the CMAs for golden eagles (AM-DFA-ICS-2) would prohibit siting or construction of Covered Activities within 1 mile of an active golden eagle nest; therefore, impacts within 1 mile of these golden eagle territories would be avoided. Under Alternative 1, 62 territories have DFAs or transmission corridors within 4 miles of nest, and the use area of these territories could be impacted through harassment and reduced foraging opportunities by Covered Activities depending of the siting of specific projects. The CMAs for golden eagles (Section II.3.1.2.5) and the approach to golden eagles (see Appendix H) describes how the impact to golden eagles would be avoided, minimized, and compensated. Based on the 2013 analysis, no more than 15 golden eagles per year in 2014 would be allowed to be taken within the Plan Area, which would be reassessed annually.

For bighorn sheep, bighorn sheep mountain habitat and intermountain (linkage) habitat have been identified in the Plan Area. Under Alternative 1 on BLM land, approximately 3,000 acres of mountain habitat and 2,000 acres of intermountain habitat would be impacted. Alternative 1 identified DFAs that largely avoid impacts to bighorn sheep mountain and intermountain habitat, and avoidance, minimization, and compensation CMAs have been developed to offset the loss of habitat for bighorn sheep.

For Mohave ground squirrel, Mohave ground squirrel important areas were identified that include key population centers, linkages, expansion areas, and climate change extension areas (see Mohave ground squirrel BGOs in Appendix C). Table IV.7-119 provides an impact analysis for these Mohave ground squirrel important areas in the BLM LUPA area. Approximately 1,000 acres of impact within key population centers would occur in Alternative 1 and only approximately 200 acres of impact would occur in climate change extension areas. Approximately 2,000 acres of impact to linkage and approximately 2,000 acres of impact to expansion areas would occur under Alternative 1. CMAs would require protocol surveys in population centers and linkages, as well as provide other measures to

offset the loss of habitat for Mohave ground squirrel (AM-DFA-ICS-36 through AM-DFA-ICS-43). Additionally, the CMAs would prohibit impacts that affect the viability of linkages. Compensation CMAs would be required for impacts to Mohave ground squirrel, including Mohave ground squirrel important areas.

Table IV.7-119
BLM LUPA Impact Analysis for Mohave Ground Squirrel Important Areas – Alternative 1

Mohave Ground Squirrel Important Area Type	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Key Population Center	299,000	500	-	-	600	1,000
Linkage	280,000	2,000	-	-	600	2,000
Expansion Area	282,000	2,000	-	-	200	2,000
Climate Change Extension	92,000	-	-	-	200	200
Total	**954,000**	**4,000**	**-**	**-**	**2,000**	**5,000**

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
[2] Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Indirect and Terrestrial Operational Impact Analysis

Siting, construction, and operational Covered Activities could result in the potential disturbance, injury, and mortality of listed and sensitive wildlife from noise, predator avoidance behavior, as well as light and glare. The degree to which these factors contribute to the disturbance of sensitive wildlife corresponds to the distribution of Covered Activities on BLM Land that would result in noise, predator avoidance behavior, or light and glare.

Based on the planned renewable energy capacity on BLM Land, most of the terrestrial operational impacts would occur in the Cadiz Valley and Chocolate Mountains subarea, as shown in Table IV.7-116. The Pinto Lucerne Valley and Eastern Slopes, Owens River Valley, West Mojave and Eastern Slopes, and Mojave and Silurian Valley subareas would also experience prevalent amounts of terrestrial operational impacts on BLM Land. As a result,

these subareas would have the greatest potential to disturbance of sensitive wildlife from noise, predator avoidance behavior, as well as light and glare.

Noise

Noise can cause physical damage to wildlife as well as behavioral changes in habitat use, activity patterns, reproduction, and foraging. Bird Covered Species, in particular during the nesting seasons, are expected to be sensitive to adverse noise effects. The largest amount of impacts to bird Covered Species habitat on BLM Land would be located in the Imperial Borrego Valley and Owens River Valley subareas. Smaller mammals, such as the Mohave ground squirrel, and reptiles, such the Mojave fringe-toed lizard and flat-tailed horned lizard, could experience increased predation from noise hindering their ability to detect predators. Overall, impacts on BLM Land to the habitat for these Covered Species would mostly occur in the Imperial Borrego Valley and Cadiz Valley and Chocolate Mountains subareas, and to a lesser extent in the West Mojave and Eastern Slopes subarea. As such, the disturbance of wildlife from noise would predominantly occur in the Imperial Borrego Valley subarea.

The disturbance and injury of wildlife from noise-related effects would be minimized through the implementation of avoidance and minimization CMAs under Alternative 1. The CMA AM-PW-13 would reduce noise generated from Covered Activities using standard practices while other CMAs that would avoid and setback Covered Activities from noise-sensitive wildlife including seasonal setbacks for nesting birds; setbacks from riparian and wetland habitat benefitting bids, amphibians, and small mammals; and avoidance of Mohave ground squirrel's during operations (AM-DFA-RIPWET-1, AM-DFA-RIPWET-5, and AM-DFA-ICS-36).

Predator Avoidance Behavior

The effects of predator avoidance behavior can occur for some wildlife in response to human activities during siting, construction, and operations. Different wildlife species may have varying sensitivities to predator avoidance behavior and may experiences different magnitudes of responses to Covered Activities. However, Covered Activities are expected to generally result in predator avoidance and other behavioral changes in most wildlife species that are spread throughout BLM Land. Therefore, the most disturbance of wildlife from predator avoidance behavior would occur in the Imperial Borrego Valley and Cadiz Valley and Chocolate Mountains subareas, where most of the terrestrial operational impacts on BLM Land are anticipated.

Under Alternative 1, avoidance and minimization CMAs for siting Covered Activities away from sensitive wildlife habitat would be implemented for riparian and wetland habitat, wildlife species that inhabit agricultural lands, and for particular species such as the Mohave ground squirrel (AM-DFA-RIPWET-1, AM-DFA-RIPWET-5, AM-DFA-AG-2, and

AM-DFA-ICS-36). Additional CMAs would inform workers of actions that could potentially affect wildlife behavior and restrict activities that could disturb wildlife and their access to water and foraging habitat (AM-PW-5, AM-PW-13, and AM-RES-RL-DUNE-2). Further seasonal restrictions would also be implemented for recreational activities that might affect Bighorn sheep in the reserve design envelope (AM-RES-BLM-ICS-11). The potential disturbance of wildlife from predator avoidance behavior caused by siting, construction, and operational Covered Activities would be minimized by these measures, which are applicable on BLM Land.

Light and Glare

Exposure of wildlife to light and glare can alter wildlife behavior including foraging, migration, and breeding. Solar projects would produce increased levels of glare due to the large amount of reflective panel or heliostat surfaces and would have greater effects on wildlife than other renewable energy technologies. Potential adverse effects associated with light and glare from solar projects, including solar flux and bird collisions from the lake effect are analyzed in BR-9. As described above, most of terrestrial operational impacts on BLM Land resulting from development of all technology types of renewable energy would occur in the Imperial Borrego Valley and Cadiz Valley and Chocolate Mountains subareas. As a result, these subareas would have the greatest potential to disturbance of sensitive wildlife from noise, predator avoidance behavior, as well as light and glare. Similarly, impacts from solar projects on BLM Land would primarily occur in the Cadiz Valley and Chocolate Mountains subarea.

Bats and other diurnal predators may exploit night lighting that increases prey detectability, but would also be attracted to areas of greater development that increase potential hazards such as collision. Impacts to habitat for bats would as a result of Covered Activities on BLM Land would mainly be located in the West Mojave and Eastern Slopes, Imperial Borrego Valley, Cadiz Valley and Chocolate Mountains, as well as the Pinto Lucerne Valley and Eastern Slopes subareas. Migratory birds that fly during the night may be attracted to aviation safety lighting that could affect their behavior. For bird Covered Species the Imperial Borrego Valley and Owens River Valley are the subareas primarily affected, containing most of the impacts to bird Covered Species habitat on BLM Land. Therefore, considering the distribution solar and other renewable energy technologies and impacts on habitat for species sensitive light and glare the greatest wildlife disturbance is anticipated to occur in the Imperial Borrego Valley subarea.

Alternative 1 would implement avoidance and minimization CMAs on BLM Land specifically intended to minimize effects of lighting and glare including AM-PW-14, which would implement standard practices for shielding and reducing the use of lights, as well as AM-DFA-RIPWET-4, which specifically restricts lighting within one mile of riparian or

wetland vegetation. Other CMAs applicable to BLM Land would implement setbacks for riparian and wetland habitat, wildlife species that inhabit agricultural lands, and for smaller mammals, which would minimize their exposure to light and glare from Covered Activities (AM-DFA-RIPWET-1, AM-DFA-RIPWET-5, and AM-DFA-AG-2).

Non-Covered Species

Potential impacts to Non-Covered Species on BLM Land were analyzed as described in Section IV.7.3.2.1. Table IV.7-120 provides an estimation of the impacts to natural communities associated with Non-Covered Species. While estimation of impacts to natural communities likely overestimates the potential impacts to Non-Covered Species habitats, it provides a general range of level of impact.

Impacts to the dune community, riparian communities, arid west freshwater emergent marsh, and Californian warm temperate marsh/seep would be avoided through implementation of CMAs, so impacts to potential habitat for each of these species is likely greater than would actually occur. For some species, impacts would be minimized through avoidance of the specific natural communities required for those species, e.g. dune-, spring-, or cave-restricted invertebrates, or riparian-obligate bird or amphibian species. The total impact to potential habitat across all technology types is less than 1%, with the exception of the agriculture/rural land cover areas at approximately 3.7%.

As additional analysis, Table IV.7-50 provides a cross-reference of natural communities shared between primary Covered and Non-Covered Species. There are a number of species-specific CMA's for Covered Species and natural communities that would be expected to also minimize and avoid impacts to the Non-Covered Species that may co-occur, e.g., the Non-Covered yellow-breasted chat often occurs within the same riparian habitat as the covered southwestern willow flycatcher, therefore, conservation measures implemented for southwestern willow flycatcher would often benefit the yellow-breasted chat. Although the modeled habitat for the Covered Species does not always directly overlap the range of Non-Covered Species requiring similar habitat, this method provides a general additional guide for determining impacts and accounting for conservation measures.

Under the Alternative 1, impacts to approximately 60 acres of Lane Mountain milk-vetch critical habitat on BLM lands would have the potential to occur from transmission. This calculation of impacts from transmission is derived from the transmission corridors overlapped with designated critical habitat, thus resulting is an overestimation of actual ground disturbance.

The results of impacts on Non-Covered Species from the creation of noise, predator avoidance behavior, and light and glare would be similar to those described for the Covered Species.

Table IV.7-120
BLM LUPA Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 1

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
California forest and woodland/ Desert conifer woodlands	Coast horned lizard, grey vireo, loggerhead shrike, yellow warbler, American badger, bighorn sheep, fringed myotis, hoary bat, long-eared myotis, pocketed free-tailed bat, spotted bat, Tehachapi pocket mouse, western mastiff bat, western small-footed myotis, Amargosa beardtongue, Charlotte's phacelia, creamy blazing star, Cushenbury buckwheat, Cushenbury milk-vetch, Cushenbury oxytheca, Kern buckwheat, Piute Mountains jewel-flower, purple-nerve cymopterus, San Bernardino Mountains dudleya, short-joint beavertail cactus, Spanish needle onion, Tracy's eriastrum, Cushenbury buckwheat	84,000	200	10	0	90	300	0.4%
Desert Scrub/ Chaparral Communities	Arroyo toad, banded gila monster, Coast horned lizard, Colorado Desert fringe-toed lizard, Couch's spadefoot, rosy boa, bald eagle, bank swallow, Crissal thrasher, Ferruginous hawk, gilded flicker, grey vireo, Le Conte's thrasher, loggerhead shrike, long-eared owl, Lucy's warbler, northern harrier, yellow warbler, American badger, Arizona myotis, big free-tailed bat, bighorn sheep, cave myotis, fringed myotis, hoary bat, long-	7,023,000	13,000	200	4,000	9,000	26,200	0.4%

Table IV.7-120
BLM LUPA Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 1

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	eared myotis, Palm Springs pocket mouse, pocketed free-tailed bat, spotted bat, Tehachapi pocket mouse, western mastiff bat, western small-footed myotis, western yellow bat, yellow-eared pocket mouse, Yuma myotis, Algodones Dunes sunflower, Ash Meadows gum plant, Amargosa beardtongue, bare- stem larkspur, Charlotte's phacelia, Cima milk-vetch, Coachella Valley milk-vetch, creamy blazing star, Cushenbury buckwheat, Cushenbury milk-vetch, Cushenbury oxytheca, desert pincushion, Emory's crucifixion-thorn, flat-seeded spurge, forked buckwheat, Harwood's eriastrum, Harwood's milkvetch, Inyo County star-tulip, Kelso Creek monkeyflower, Kern buckwheat, Las Animas colubrina, Lane Mountain Milk-Vetch, Mojave Desert plum, Mojave milkweed, Munz's Cholla, nine-awned pappus grass, Orcutt's woody aster, Orocopia sage, Parish's club cholla, Pierson's milk-vetch, pink fairy-duster, Piute Mountains jewel-flower, purple-nerve cymopterus, Red Rock poppy, Red Rock tarplant, Robinson's monardella, Rusby's desert-mallow, sand food,							

Table IV.7-120
BLM LUPA Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 1

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	Sodaville milk-vetch, short-joint beavertail cactus, Spanish needle onion, Thorne's buckwheat, Tracy's eriastrum, Utah beardtongue, white bear poppy, White-margined beardstongue, Wiggin's croton, Flat-seeded spurge, Parish's phacelia, Parish's alkali grass							
Dunes[3]/ Desert Outcrop and Badlands	Banded gila monster, barefoot gecko, Coast horned lizard, Colorado Desert fringe-toed lizard, Couch's spadefoot, rosy boa, bald eagle, bank swallow, Le Conte's thrasher, loggerhead shrike, long-eared owl, northern harrier, Amargosa vole, big free-tailed bat, bighorn sheep, cave myotis, bat, spotted bat, western mastiff bat, Yuma myotis, Algodones Dunes sunflower, Ash Meadows gum plant, Amargosa beardtongue, Amargosa niterwort, Charlotte's phacelia, Cima milk-vetch, Coachella Valley milk-vetch, creamy blazing star, desert pincushion, Emory's crucifixion-thorn, flat-seeded spurge, forked buckwheat, Harwood's eriastrum, Harwood's milkvetch, Inyo County star-tulip, Las Animas colubrina, Mojave Desert plum, Mojave milkweed, nine-awned pappus grass, Orcutt's woody aster, Orocopia sage, Palmer's jackass	1,330,000	700	10	60	2,000	2,770	0.2%

Table IV.7-120
BLM LUPA Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 1

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	clover, Parish's club cholla, Pierson's milk-vetch, pink fairy-duster, purple-nerve cymopterus, Red Rock poppy, Red Rock tarplant, Robinson's monardella, Rusby's desert-mallow, sand food, Spanish needle onion, Thorne's buckwheat, Utah beardtongue, white bear poppy, Wiggin's croton, Palmer's jackass clover, white-margined beardtongue, flat-seeded spurge							
Grassland	Coast horned lizard, American peregrine falcon, bank swallow, Ferruginous hawk, long-eared owl, northern harrier, white-tailed kite, Amargosa vole, American badger, spotted bat, Cushenbury milk-vetch, Cushenbury oxytheca, short-joint beavertail cactus	29,000	20	0	0	200	220	0.8%
Riparian/ Wetlands	Arroyo toad, California red-legged frog, Coast horned lizard, Couch's spadefoot, Western pond turtle, American peregrine falcon, Arizona Bell's vireo, bald eagle, bank swallow, Crissal thrasher, gilded flicker, elf owl, Inyo California towhee, loggerhead shrike, long-eared owl, Lucy's warbler, northern harrier, redhead, vermillion flycatcher, white-tailed kite, yellow-breasted chat, yellow-headed	1,443,000	50	0	0	100	150	0.01%

Table IV.7-120
BLM LUPA Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 1

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	blackbird, yellow warbler, Amargosa vole, Mojave River vole, Arizona myotis, cave myotis, fringed myotis, hoary bat, long-eared myotispocketed free-tailed bat, spotted bat, western mastiff bat, western yellow bat, Yuma myotis, Ash Meadows gum plant, Inyo County star-tulip, Parish's alkali grass, Parish's phacelia, Amargosa pupfish, Amargosa speckled dace, Amargosa spring snails							
Agriculture/ Rural Land Cover	American peregrine falcon, Bank swallow, loggerhead shrike, long-eared owl, northern harrier, redhead, yellow-headed blackbird, yellow warbler, Arizona myotis, hoary bat, Tehachapi pocket mouse, western mastiff bat, western yellow bat	9,000	50	0	30	250	330	3.7%

1 Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

2 Solar impacts include ground-mounted distributed generation.

3 Impacts to the dune community, riparian communities, arid west freshwater emergent marsh, and Californian warm temperate marsh/seep would be avoided through implementation of CMAs. Only impacts determined to be unavoidable would occur in these natural communities.

4 This amount assumes the loss of conservation value for all land fragmented by the well fields.

Notes: The natural community classification system is described in Chapter III.7 and follows CDFG 2012. Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Impact BR-5: Siting, construction, decommissioning, and operational activities could result in loss of nesting birds (violation of the federal Migratory Bird Treaty Act and California Fish and Game Code Sections 3503, 3503.5, 3511, and 3513).

Siting, construction, decommissioning, and operations of renewable energy and transmission projects would result in the removal of vegetation and other nesting habitat and cause increased human presence and noise that has the potential to cause the loss of nesting birds, which would be a violation of the federal Migratory Bird Treaty Act and the California Fish and Game Code. The potential loss of nesting birds resulting from these activities would be adverse without application of CMAs. Avoidance and minimization CMAs (AM-PW-4, 13, 14; AM-DFA-RIPWET-1, 3, 5; AM-DFA-AG-1 through 6; AM-DFA-ICS CMAs for bird species) include the season restrictions, survey requirements, and setbacks necessary to avoid and minimize the loss of nesting birds.

Impact BR-6: Siting, construction, decommissioning, and operational activities would adversely affect habitat linkages and wildlife movement corridors, the movement of fish, and native wildlife nursery sites.

Species-specific habitat linkages and wildlife movement areas are a component of analysis conducted under Impact BR-4 above. Suitable habitat for each species includes areas of habitat linkages and wildlife movement. Analysis under BR-4 specifically incorporates habitat linkage information for desert tortoise, Mohave ground squirrel, and desert bighorn sheep. In addition to the species-specific analysis of impacts to suitable habitat supporting habitat linkages and wildlife movement for species, landscape level information on habitat linkages (i.e., Desert Linkage Network) and migratory bird movement are analyzed below.

Desert Linkage Network

Table IV.7-121 shows the impact analysis for the desert linkage network for Alternative 1 for the BLM LUPA. Overall, over 5,000 acres of desert linkage network could be adversely impacted in DFAs or transmission corridors in six different subareas. In the Cadiz Valley and Chocolate Mountains subarea, DFAs are located in the portion of the desert linkage network that connects the Colorado River to the northern part of the McCoy Mountains. There are also DFAs in the Chuckwalla Valley in the linkage that connects the Palo Verde Mountains to the McCoy Mountains. In the Imperial Borrego Valley, there are DFAs in the northern portion of the desert linkage network that extends along East Mesa from east of the Imperial Valley north toward the Coachella Canal. In the Mojave and Silurian Valley, there are DFAs in the Mojave Valley in a linkage that connects the area around Barstow to the Calico Mountains and east along and south of the Mojave River. In the Owens River Valley, there are DFAs in the desert linkage network that connects the Haiwee Reservoir to Indian Wells. In the Pinto Lucerne Valley and Eastern Slopes subarea, there are DFAs in the

desert linkage network that connects the Grapevine Canyon Recreation Lands to the Granite Mountains and the Lucerne Valley. There are also DFAs in the linkage that connects Black Mountain to the Mojave River. In the West Mojave and Eastern Slopes subarea, there are DFAs in the linkage that connects the area around Baldy Mesa along the southern edge of the Plan Area to Helendale. There are also DFAs in the linkages that connect Fremont Valley and Soledad Mountain to the Tehachapi Mountains.

To avoid and minimize impacts to the desert linkage network beyond what is presented in Table IV.7-121, Covered Activities will be sited and designed to maintain the function of wildlife connectivity in the following linkage and connectivity areas: (1) across Interstate 10 centered on Wiley's Well Road to connect the Mule and McCoy mountains, (2) across Interstate 10 to connect the Chuckwalla and Palen mountains, (3) across Interstate 10 to connect the Chuckwalla Mountains to the Chuckwalla Valley east of Desert Center, and (4) the confluence of Milpitas Wash and Colorado River floodplain. In addition, the Riparian and Wetland Natural Communities and Covered Species CMAs will contribute to maintaining and promoting habitat connectivity and wildlife movement.

Table IV.7-121
BLM LUPA Impact Analysis for the Desert Linkage Network – Alternative 1

Desert Linkage Network by Ecoregion Subarea	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Cadiz Valley and Chocolate Mountains	709,000	500	10	-	3,000	4,000
Imperial Borrego Valley	146,000	40	-	50	70	200
Kingston and Funeral Mountains	138,000	-	-	-	-	-
Mojave and Silurian Valley	368,000	-	-	-	500	500
Owens River Valley	15,000	900	-	-	400	1,000
Panamint Death Valley	112,000	-	-	-	-	-
Pinto Lucerne Valley and Eastern Slopes	168,000	200	10	-	600	900
Piute Valley and Sacramento Mountains	111,000	-	-	-	-	-
Providence and Bullion Mountains	377,000	-	-	-	-	-
West Mojave and Eastern Slopes	386,000	200	-	-	100	400
Total	**2,530,000**	**15,000**	**3,000**	**900**	**5,000**	**25,000**

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

[2] Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Migratory Birds

Migration patterns and the potential impacts of different technologies are discussed, in the typical impacts section (Section IV.7.2.1.3), with direct habitat loss quantified in BR-4, and operational impacts quantified in BR-10. The following analysis focuses on the anticipated distribution of different technology types in relation to known migratory corridors, and migratory resources in each subarea.

In the Alternative 1 wind generation is a very small proportion of the overall generation mix. BLM managed DFAs are divide between the West Mojave and Eastern Slopes, and Cadiz and Chocolate Mountain Subareas. Wind development would mostly occur on the eastern slopes of the Tehachapi Mountains and in the mountainous areas around Lucerne Valley. Key bird migration areas would include routes between the Tehachapi, and the temporary lakes and wetland refuges on and to the north of Edwards AFB. Wind development would also occur in the Cadiz and Chocolate Mountains subarea north of the I-10. These areas are near to the Colorado River migratory corridor, and may affect migratory bird movement to and from the Coachella Valley.

Solar development would be constructed in Owens Valley, Pinto Lucerne Valley, Cadiz and Chocolate Mountain and Imperial Borrego Valley subareas, with very limited development in West Mojave and Eastern Slopes. Alternative 1 would result in new solar PV and solar thermal generation facilities in the west most portion of the BLM SEZ along the I-10 corridor to the west side of the Colorado River. This may give the appearance of a string of lakes on known migratory linkages for birds between the Colorado River and Coachella Valley. Alternative 1 would result in solar development, around the Salton Sea and in the Imperial Valley, would be on the west side of the East Mesa ACEC, and include areas to the west of the Salton Sea that include the Truckhaven geothermal resource area. Further, in Alternative 1, solar development south of Owens Lake would impact migratory birds traveling down the eastern side of the Sierras. Overall impacts on BLM lands would be very limited.

Application of CMAs would require projects to be sited and designed to avoid impacts to occupied habitat and suitable habitat for Covered Species to the maximum extent feasible. A bird and bat use and mortality monitoring program would be implemented during

operations Further, proposed projects that are likely to impact bird and bat Covered Species during operation would develop and implement a project-specific Bird and Bat Covered Species Operational Actions that meets the approval of the appropriate DRECP Coordination Group. The goal of the project-specific BBOS would be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind solar and geothermal projects. CMAs would negate direct loss of riparian and wetlands habitats, result in no directly loss of riparian and wetland a habitats. Further, implementation of species specific CMAs would ensure impacts to bird species would be reduced and compensation CMAs would offset habitat loss for these species. The compensation requirements in the Bird and Bat Covered Species Operational Actions would be based on ongoing/annual fees and the biological basis for the fee would be determined by the mortality effects as annually measured and monitored according to the Bird and Bat Covered Species Operational Actions. Application of CMAs would reduce the overall impacts to migratory bird populations.

Impact BR-7: Siting, construction, decommissioning, and operational activities would result in habitat fragmentation and isolation of populations of listed and sensitive plants and wildlife.

As discussed in the Plan-wide analysis, the construction and operation of renewable energy and transmission projects can have the potential to fragment intact and interconnected landscapes resulting in isolated patches of habitat, isolated species populations, reduced gene flow, and remaining habitat that is more exposed to the edge effects of adjacent developments. The DRECP integrated planning process, as described in Volume II, avoids and minimizes this impact through the siting of DFAs and through the reserve design. In order to minimize habitat fragmentation and population isolation, DFAs were sited in less intact and more degraded areas. Other measures of fragmentation and population isolation effects include the amount of impacts on environmental gradients such as elevation, landforms, slope, and aspect. The impacts to these four environmental gradients under Alternative 1 within DFAs on BLM Land would follow the same overall pattern as Plan-wide impacts (AM-LL-1 through AM-LL-4).

Impact BR-8: Construction of generation facilities or transmission lines would result in increased predation of listed and sensitive wildlife species.

Higher predator densities and hence high predation rates are a documented effect of increased human development in the Plan Area. The extent to which Covered Activities contribute to increasing predation through phenomena like predator subsidization is linked to the likely extent of Covered Activities in undisturbed parts of desert.

Agricultural landscapes in the west Mojave, Lucerne Valley, and Imperial Borrego Valley or surrounding Blythe are already disturbed, with relatively high levels of human activity that supplement predators such as ravens and coyotes, and support covered predator species such as burrowing owls and Swainson's hawk. Therefore, covered operational activities in already disturbed rural and agricultural landscapes are would result in a little increase in predation.

However, Covered Activities in undisturbed desert habitat are likely to disproportionately supplement predators, increase predator density and consequently increase predation rates on Covered Species. Alternative 1 would result 31,000 acres of long-term conversion of natural desert communities with 500 acres of impacts to already disturbed communities. Approximately 1% of disturbance would occur in already disturbed landscapes.

Virtually all development would occur in undisturbed areas. Susceptible species would include desert tortoise, and nestlings and eggs of Covered Species like southwestern willow flycatcher, and golden eagle, as well as, small reptiles like the and Mojave Fringe toed lizard and Flat tailed horned lizard.

Application of a Common Raven Management Plan (AM-PW-6), approved by the appropriate DRECP Coordination Group would reduce project activities that increase predator subsidization. Including, removal of trash and organic waste; minimize introduction of new water sources including pooling of water from dust control; removal of carcasses from bird and bat collisions; and reduction in new nesting and perching sites where feasible.

Impact BR-9: Operational activities would result in avian and bat injury and mortality from collisions, thermal flux or electrocution at generation and transmission facilities.

The impacts of operation activities on avian and bat injury and mortality are analyzed below for wind turbines, solar, and transmission.

Wind Turbine

This section summarizes wind turbine operational impacts to bird and bat species within BLM administered DFAs. The range of collision rates calculated in Table IV.7-122 are indicative of the overall annual collision rates for all bird and bat species, not just Covered Species. The range of collision rates is estimated for the final full build-out of wind over the life of the Plan, and is based on the range of collision rates in existing published and gray literature. While it is possible to provide a range of possible collision rates, it is not feasible to estimate the collision rate for each Covered Species, but only infer the propensity for a species to be at risk of collision from its expected distribution and life history of the birds in the Plan Area.

The expected distribution of wind generation indicates that 41% of all collisions in DFAs on BLM lands would occur in the Cadiz Valley and Chocolate Mountains subarea. The remaining 22% would be in the Pinto Lucerne Valley and Eastern Slopes subarea with 59% of collision. Overall, this alternative would result in a median of 200 collisions per year for birds and 700 collisions for bats across the Plan Area.

Wind development presents a very limited impact to bird and bat species in Alternative 1. Susceptible species in the Cadiz Valley and Chocolate Mountains region include western yellow-billed cuckoo, Yuma clapper rail, mountain plover, southwest willow flycatcher, and burrowing owl. Whereas, development in the Pinto and Lucerne Valley subarea would affect golden eagle territories and important Bendire's thrasher habitat. Affected bat species would include pallid bat, Townsend' big eared bat and California leaf-nosed bat.

Pre-construction CMAs require habitat assessments and pre-construction surveys for covered riparian and wetland bird, burrowing owl, Swainson's hawk, Bendire's thrasher, golden eagle.

Application of siting CMAs would avoid or minimize the risk to species localities. Setbacks from active nests would be required for Bendire's thrasher, California condor, Gila woodpecker, and golden eagle. In addition, projects would be sited and designed to avoid impacts to occupied habitat, and suitable habitat for Covered Species to the maximum extent feasible. Implementation of bat specific CMAs include 0.5-mile setbacks from all bat maternity roosts and 5% disturbance caps on desert scrub and woodland habitats in the vicinity of occupied pallid bat and Townsend's big-eared bat roosts would reduce impacts to covered bat species.

Applicants would develop and implement a project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meets the approval of the appropriate DRECP Coordination Group. The goal of the project-specific Bird and Bat Covered Species Operational Actions will be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar, geothermal, or transmission project. A bird and bat use and mortality monitoring program will be implemented during operations using current protocols and best procedures available at time of monitoring. Further, the compensation requirements in the Bird and Bat Covered Species Operational Actions would be based on ongoing/annual fees and the biological basis for the fee will be determined by the mortality effects as annually measured and monitored according to the Bird and Bat Covered Species Operational Actions.

Similarly, a Condor Operations Strategy (COS) would be developed on a project-specific basis with the goal of avoiding mortality from operations of wind, solar and geothermal projects. No take for condors will be will be permitted in the form of kill from project

operations. Any actions taken to encourage condors to leave an area that might result in harassment, injury, or mortality to the bird will be conducted by a Designated Biologist.

Table IV.7-122
BLM LUPA Impact Analysis – Estimated Range of Bird and Bat Collisions per Year by Subarea – Alternative 1

	# Turbines	Birds (Collisions/Yr)[1]			Bats (Collisions/Yr)[1]		
		Low	*Median*	*High*	*Low*	*Median*	*High*
Cadiz Valley and Chocolate Mountains	12	20	60	200	30	300	2,000
Imperial Borrego Valley	0	-	-	-	-	-	-
Kingston and Funeral Mountains	0	-	-	-	-	-	-
Mojave and Silurian Valley	0	-	-	-	-	-	-
Owens River Valley	0	-	-	-	-	-	-
Panamint Death Valley	0	-	-	-	-	-	-
Pinto Lucerne Valley and Eastern Slopes	18	30	90	300	40	400	3,000
Piute Valley and Sacramento Mountains	0	-	-	-	-	-	-
Providence and Bullion Mountains	0	-	-	-	-	-	-
West Mojave and Eastern Slopes	0	-	-	-	-	-	-
Grand Total	**31**	**50**	**200**	**600**	**60**	**700**	**4,000**

[1] Method for estimation of annual bird and bat collision rates described in Section IV.7.1.1.2 and discussed in more detail in Section IV.7.2.1.3

Note The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Solar

Under Alternative 1, impacts to avian and bat species from solar development based on the planned solar capacity. The distribution of impacts within BLM administered DFAs would see a 1.4-fold increase in collision risks relative to baseline. 28% of the collision risks would occur in the Cadiz and Chocolate Mountains, with another 28% in Owens Valley, and 18% in Imperial Borrego Valley. 16% of development would occur in the Pinto Lucerne Valley with the remaining 9 % spread across the rest of the plan area.

Development in the Owens Valley subarea would occur in Rose Valley. Susceptible species would include golden eagle, Bendire's thrasher, burrowing owls, least Bell's vireo, southwestern willow flycatcher and to a lesser extent Swainson's hawk. Impacted bats would include pallid bat, Townsend's big-eared bat. Development in the West Mojave and Eastern Slopes subareas would occur in the Tehachapi Mountains and areas to the north of Edwards AFB. In these areas, susceptible species would include tricolored blackbird, golden eagle, mountain plover, Bendire's thrasher, Burrowing owls, least bell's Vireo, Southwestern willow flycatcher and to a lesser extent Swainson's hawk. Impacted bats would include pallid bat, Townsend's big-eared bat. Covered Activities associated with solar generation in the Pinto and Lucerne Valley subarea would affect areas in the foothills of the San Bernardino Mountains and areas north of Victorville. Susceptible species in this subareas include golden eagle, and Bendire's thrasher as well as other species identified in the West Mojave. The development in the Cadiz and Chocolate Mountains subarea would occur in the solar PEIS SEZ adjacent to the I-10 corridor. Species impacted by Covered Activities include: Bendire's thrasher, burrowing owl, Gila woodpecker, golden eagle, greater sandhill crane, and mountain plover, western yellow-billed cuckoo and Gila woodpecker. Anticipated impacts in Imperial Borrego Valley would occur in two BLM managed areas: land along the western edge of East Mesa ACEC; and in BLM managed lands on the west side of the Salton Sea. Birds and bats at risk from solar impacts include would include California black rail, Gila woodpecker, golden eagle, greater sandhill crane, mountain plover, southwestern willow flycatcher, Swainson's hawk, Yuma clapper rail, Bendire's thrasher, and burrowing owl. Bats affected would include pallid bat, California leaf-nosed bat, and Townsend's big-eared bat.

To offset potential impacts, the application of CMAs would require projects to be sited and designed to avoid impacts to occupied and suitable habitat for Covered Species, to the maximum extent feasible. Further, siting and construction CMAs require setbacks from riparian and wetland habitats which would minimize direct loss. Compensation CMAs would offset habitat loss for Covered Species. A bird and bat use and mortality monitoring program would be implemented during operations. Any proposed projects that are likely to impact bird and bat Covered Species during operation would develop and implement project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meet the approval of the appropriate DRECP Coordination Group. The goal of the project-specific Bird and Bat Covered Species Operational Actions would be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar and geothermal projects. The compensation requirements of AM-LL-4 would be based on ongoing/annual fees and the biological basis for the fee would be determined by the mortality effects as annually measured and monitored according to AM-LL-4. In combination, the application of siting, monitoring, operational and compensation CMAs would minimize impacts to resident and migratory birds.

Bat mortality from solar facilities may occur because of collision or solar flux injury. No DFAs are known to be specifically sensitive areas for bat foraging, and implementation of bat specific CMAs include 500 feet setbacks from all bat maternity roosts and 5% disturbance caps on desert scrub and woodland habitats in the vicinity of occupied pallid bat and Townsend's big-eared bat roosts would reduce impacts to bat Covered Species. Further, the development of Bird and Bat Covered Species Operational Actions (AM-LL-4) as discussed above would greatly reduce the risk to bat populations. Consequently, application of CMAs would reduce the overall impacts to bat populations

Transmission

The transmission collision and electrocution impacts would occur from generation tie lines (collector lines), new substations, and major transmission lines (delivery lines) that deliver power to major load centers. The distribution of impacts from collector lines would mostly occur within DFAs and be similar in distribution to the generation facilities. Most of the affected areas would be in Cadiz and Chocolate Mountains, Imperial Borrego Valley, Mojave and Silurian Valley, Pinto Lucerne Valley and West Mojave and Eastern Slopes subareas, with 5,000 acres, 4,000 acres, 1,000 acres , 1,000 acres ,and 200 acres respectively. The remaining 600 acres of terrestrial impacts would be spread throughout the remaining subareas.

Both large transmission lines and the network of smaller gen-tie lines would present collision and electrocution hazard to covered bird species. In particular, lines running perpendicular to migratory corridors, and/or close to bird refuges would represent a greater hazard. Such lines would include anticipated delivery lines running parallel to the Tehachapi mountains in existing transmission corridor adjacent to HWY 14. As well as, delivery lines in Chuckwalla Valley that would run parallel to I-10 corridor in the designated BLM/368 transmission corridors. In Imperial Borrego Valley subarea, delivery lines would run along the along the eastern side of Salton Sea in existing transmission corridors that run parallel to the foothills of the Chocolate Mountains. In conjunction with collector lines running along the western side of the Salton Sea from the Truckhaven geothermal resource areas, and collector lines throughout the agricultural lands south of the Salton Sea. The new transmission network would represent additional risk to migrating and overwintering covered avian species, due to their location. Collision risks in these areas increase during storm events when flocks of migrating birds come down to wait out the storms before continuing their migration.

The anticipated additional transmission infrastructure could impact covered bird species. To ameliorate potential hazards, transmission projects would reduce impacts to Covered Species by implementing Plan-wide, landscape-level, natural community, and Covered Species CMAs where feasible, as discussed under the wind impacts section.

Applicants would develop and implement a project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meets the approval of the appropriate DRECP Coordination Group. The goal of the project-specific BBOS will be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar, geothermal, or transmission project. A bird and bat use and mortality monitoring program will be implemented during operations using current protocols and best procedures available at time of monitoring. Further, the compensation requirements in the Bird and Bat Covered Species Operational Actions would be based on ongoing/annual fees and the mortality effects as annually measured and monitored according to the Bird and Bat Covered Species Operational Actions will determine the biological basis for the fee.

In addition, transmission projects would implement transmission specific CMAs that would: where feasible, bury electrical collector lines along roads (AM-TRANS-1); fit flight diverters on all transmission projects spanning or within 1,000 feet of water bodies and watercourses (AM-TRANS-2); avoid siting transmission projects that span canyons or are located on ridgelines (AM-TRANS-3); restrict transmission projects to within designated utility corridors (AM-TRANS-4). With the implementation of CMAs impacts to Covered Species would minimized.

The level of impact on Non-Covered Species would be similar to that discussed for the Covered Species.

Operational Impacts Take Estimates for Covered Avian and Bat Species

The following section summaries the initial estimates for take of Covered Species by operational activities that would require compensatory mitigation. Take estimates integrate all sources of mortality for each technology discussed above.

Table IV.7-123
BLM LUPA Estimated Total Take for Covered Avian and Bat Species – Alternative 1

Covered Bird and Bat Species	Solar Impact	Wind Impact	Geothermal Impact	Total Impact
Bendire's thrasher	10	0	0	10
Burrowing owl	30	0	10	40
California condor	0	0	0	0
California black rail	10	0	0	10
Gila woodpecker	10	0	0	10
Golden eagle	n/a	n/a	n/a	n/a
Least Bell's vireo	100	0	0	100
Mountain plover	20	0	10	30

Table IV.7-123
BLM LUPA Estimated Total Take for Covered Avian and Bat Species – Alternative 1

Covered Bird and Bat Species	Solar Impact	Wind Impact	Geothermal Impact	Total Impact
Greater sandhill crane	0	0	0	0
Southwestern willow flycatcher	30	0	0	30
Swainson's hawk	10	0	0	10
Tricolored blackbird	20	0	0	20
Western yellow billed cuckoo	10	0	0	10
Yuma clapper rail	10	0	0	10
Grand Total Avian Species	260	0	20	280
California leaf-nosed bat	30	0	0	30
Pallid bat	10	0	0	10
Townsend's big-eared bat	20	0	0	20
Grand Total Bat Species	60	0	0	60

[1] Take for California condor would not be permitted under the DRECP.

[2] Take of Golden Eagle would be permitted on a project by project basis. Based on the 2013 analysis, no more than 15 golden eagles per year would be authorized for 2014 for any new activity within the Plan Area. Take limits for the DRECP area will be re-evaluated annually based on the amount of ongoing take and population estimates of eagles within the local-area population of eagles.

Note: The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

IV.7.3.3.2.2 Impacts of Changes to BLM Land Designations

The BLM LUPA would establish conservation designations on BLM-administered lands under each alternative that would conserve biological resources, including NLCS, ACEC, and wildlife allocations. On BLM-administered lands under Alternative 1, the BLM LUPA would designate approximately 4,863,000 acres of BLM LUPA conservation designations, including 1,490,000 acres of NLCS, 2,789,000 acres of ACEC, and 585,000 acres of wildlife allocation. Additionally, existing conservation areas occur on BLM-administered lands that conserve biological resources. Appendix L provides unit-specific ACEC and NLCS worksheets that identify relevant resources, specific resources goals, objectives, and prescribed management actions. The following provides an analysis of the conservation that would be provided in these BLM LUPA conservation designations, organized by landscape, natural communities, and species.

The BLM LUPA would also establish Special Recreation Management Areas (SRMAs) and would identify lands to be managed to protect Wilderness Characteristics. These BLM LUPA land designations are overlays that specify particular management and uses for specific

areas. Unit-specific SRMA worksheets are provided in Appendix L and the CMAs specific to lands managed to protect Wilderness Characteristics are provided as part of the Volume II descriptions of the DRECP alternatives. These land designations may co-occur with the BLM LUPA conservation designations (NLCS, ACECs, and wildlife allocations). Where these land designations do no co-occur with the BLM LUPA conservation designations, they were not included as part of the reserve design envelope and were not included in the conservation analysis for biological resources provided in this section.

Landscape

Habitat Linkages

Table IV.7-124 shows the Plan-wide conservation of the desert linkage network under Alternative 1 for the BLM LUPA. Conservation of the desert linkage network totals more than 2.6 million acres (73%). The linkage in the northern portion of the Cadiz Valley and Chocolate Mountains subarea that extends from the Ward Valley to the Vidal Valley and south to the Big Maria Mountains and the Palen Mountains and the linkage from the Ward Valley to the Cadiz Valley are almost entirely conserved. Though the majority of the remaining linkages are conserved, there are some DFAs that that may interrupt them (see Section IV.7.3.2.2.1). In the Imperial Borrego Valley, the connection that extends into the Cadiz Valley and Chocolate Mountains subarea to the east is largely conserved, but the remaining linkage along East Mesa is only partly conserved. The linkages in the Kingston and Funeral Mountains subarea along Shadow Valley and the westernmost linkage to the Silurian Valley are mostly conserved. None of the linkages in the Mojave and Silurian Valley subarea are entirely conserved since the middle portion of the subarea is not in Reserve Lands. Portions of the single linkage in the Owens River Valley subarea are not conserved. The connectivity of the northernmost linkage in the Panamint Death Valley subarea is preserved since most of that linkage is conserved. In the Pinto Lucerne Valley and Eastern Slopes subarea, none of the linkages are completely conserved. The linkages along the eastern boundary of the Piute Valley and Sacramento Mountains subarea would not be in Reserve Lands, and most of the remaining linkages would be mostly conserved. All of the linkages in the Providence and Bullion Mountains subarea would be largely maintained in Reserve Lands. In the West Mojave and Eastern Slopes subarea, linkage conservation is most concentrated in the northern portion of the subarea near the Tehachapi Mountains.

In addition to conservation of the desert linkage network, CMAs provide for the avoidance and minimization of certain linkages in the DFAs (see Section IV.7.3.3.1.1).

Table IV.7-124
BLM LUPA Conservation Analysis for the Desert Linkage Network – Alternative 1

Desert Linkage Network by Ecoregion Subarea	Available Lands (acres)	Existing Conservation[1] (acres)	NLCS (acres)[2]	ACEC (acres)	Wildlife Allocation (acres)	Total Conservation (acres)	% of Available Lands
Cadiz Valley and Chocolate Mountains	890,000	187,000	238,000	206,000	76,000	716,000	80%
Imperial Borrego Valley	156,000	14,000	10,000	34,000	61,000	120,000	77%
Kingston and Funeral Mountains	174,000	28,000	23,000	90,000	-	142,000	82%
Mojave and Silurian Valley	507,000	179,000	33,000	171,000	-	390,000	77%
Owens River Valley	19,000	40	3,000	10,000	-	14,000	72%
Panamint Death Valley	206,000	109,000	34,000	37,000	5,000	186,000	90%
Pinto Lucerne Valley and Eastern Slopes	291,000	16,000	23,000	122,000	400	162,000	56%
Piute Valley and Sacramento Mountains	152,000	14,000	54,000	40,000	-	110,000	72%
Providence and Bullion Mountains	426,000	144,000	79,000	139,000	-	365,000	86%
West Mojave and Eastern Slopes	860,000	45,000	26,000	337,000	9,000	467,000	54%
Grand Total	**3,682,000**	**736,000**	**524,000**	**1,186,000**	**152,000**	**2,672,000**	**73%**

[1] Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on BLM-administered land.

[2] Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), on BLM-administered land.

Notes: Conservation acreages reported for Existing Conservation and BLM LUPA conservation designations reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Overlaps of ACECs or Wildlife Allocations with NLCS designations are reported as NLCS designations. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Hydrological Resources

A conservation analysis for hydrological resources is provided below, including playa, seep/spring, and the four major rivers in the Plan Area (i.e., Amargosa, Colorado, Mojave and Owens) for Alternative 1 on BLM land. Conservation of riparian areas and wetlands, which co-occur with many of these hydrological resources is provided below under Natural Communities.

Playa

Playa totals 162,00 acres in the Plan Area. Overall, 58% (94,000 acres) would be conserved under Alternative 1 on BLM land. Existing Conservation would account for 11% of the conservation, NCLSs would account for 14%, ACECs would account for 30%, and wildlife allocations would account for 45%. Additionally, playas and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks. CMAs for playas would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided riparian or wetland natural communities.

Seep/Spring

There are 177 seep/spring locations in the Plan Area under Alternative 1 on BLM land. Overall, 77% (137 locations) of the seep/spring locations would be conserved under Alternative 1 on BLM land. The conservation of seep/spring under Alternative 1 on BLM land would be more than half in all subareas except the Imperial Borrego Valley (33%, 1 location). These include Cadiz Valley and Chocolate Mountains (100%, 5 locations), Kingston and Funeral Mountains (68%, 21 locations), Mojave and Silurian Valley (100%, 10 locations), Owens River Valley (60%, 6 locations), Panamint Death Valley (83%, 10 locations), Piute Valley and Sacramento Mountains (81%, 16 locations), Pinto Lucerne Valley and Eastern Slopes (74%, 29 locations), Providence and Bullion Mountains (95%, 19 locations), and West Mojave and Eastern Slopes (78%, 32 locations).

Overall, Existing Conservation would account for 30% of the conservation of seep/spring, NCLSs would account for 22%, ACECs would account for 24%, and 2% in wildlife allocations. Additionally, seeps and springs and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks. CMAs for seep/spring locations would require compliance with all applicable laws and regulations

pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided wetland natural communities.

Major Rivers

Overall, 86% of the major rivers would be conserved under Alternative 1 on BLM land, including 90% of the Amargosa River and 81% of the Mojave River. Existing Conservation would account for 35%, NLCSs would account for 14%, and ACECs would account for 37%. Additionally, major rivers and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks.

Dune and Sand Resources

Overall, 80% (787,000 acres) of dunes and sand resources would be conserved under Alternative 1 on BLM land. At least 50% of dunes and sand resources would be conserved in 8 subareas in the Plan Area that contain substantial acreage of dunes and sand resources, including Cadiz Valley and Chocolate Mountains at 91% (478,000 acres), Imperial Borrego Valley at 67% (79,000 acres), Kingston and Funeral Mountains at 65% (29,000 acres), Mojave and Silurian Valley at 77% (33,000 acres), Owens River Valley at 87% (4,000 acres), Panamint and Death Valley at 54% (17,000 acres), Providence and Bullion Mountains at 72% (135,000 acres), and West Mojave and Eastern Slopes at 79% (7,000 acres). A subarea with lower conservation of dunes and sand resources under the Alternative 1 on BLM land is Pinto Lucerne Valley and Eastern Slopes at 32% (6,000 acres). Dunes, sand resources and associated Covered Species, natural communities and ecological functions would be avoided through application of the dune avoidance and minimization CMAs.

Environmental Gradients

The conservation analysis addresses four types of environmental gradients in the Plan Area: elevation, landforms, slope, and aspect. The conservation of these four environmental gradients under Alternative 1 within DFAs on BLM Land would follow the same overall pattern as Plan-wide conservation.

Natural Communities

Table IV.7-125 shows the conservation to natural communities with changes to BLM LUPA Designations on BLM Land. A conservation summary by general community is provided below in comparison to Plan-wide conservation discussed in Section IV.7.3.2.1.2. Appendix R2 provides a detailed analysis of natural community conservation by ecoregion subarea.

California forest and woodlands

Overall, approximately 38,000 acres (86%) of California forest and woodlands would be conserved under Alternative 1 on BLM Lands, which is approximately 60% of the conserved acreage of California forest and woodland compared to the Plan-wide conservation of this general community. The majority of conservation would occur in the Pinto Lucerne Valley and Eastern Slopes subarea. Conservation would primarily come from BLM LUPA conservation designations with wildlife allocations comprising most of the BLM LUPA conservation designations. In addition to conservation of California forest and woodlands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 11,000 acres (62%) of chaparral and coastal scrubs would be conserved under Alternative 1 on BLM Lands, which is more proportionally than would be conserved Plan-wide. The majority of conservation would occur in the Pinto Lucerne Valley and Eastern Slopes subarea. Most of the BLM LUPA conservation designations are in ACECs. In addition to conservation of chaparral and coastal scrubs, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert conifer woodlands

Overall, approximately 41,000 acres (82%) of desert conifer woodlands would be conserved under Alternative 1 on BLM Lands, which is slightly more proportionally than would be conserved Plan-wide. The majority of conservation would occur in the Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas. Conservation would primarily come from existing conservation. Most of the BLM LUPA conservation designations are in NLCSs or ACECs. In addition to conservation of desert conifer woodlands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert outcrop and badlands

Overall, approximately 1,022,000 acres (85%) of desert outcrop and badlands would be conserved under Alternative 1 on BLM Land, which is 5% more than the proportion of available lands conserved Plan-wide. The majority of conservation would occur in the Cadiz

Valley and Chocolate Mountains and Piute Valley and Sacramento Mountains subareas. Conservation would primarily come from existing conservation and most of the BLM LUPA conservation designations are in NLCSs. In addition to conservation of desert outcrop and badlands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert scrubs

Overall, approximately 5,805,000 acres (83%) of desert scrubs would be conserved under Alternative 1 on BLM Land, which is more than the proportion of available lands conserved Plan-wide. The majority of conservation would occur in the Cadiz Valley and Chocolate Mountains, Providence and Bullion Mountains, and Kingston and Funeral Mountains subareas. Conservation would primarily come from BLM LUPA conservation designations, which are made up of mostly ACECs. In addition to conservation of desert scrubs, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Dunes

Overall, approximately 93,000 acres (73%) of dunes would be conserved under Alternative 1 on BLM Land, which is 4% less than the proportion of available lands conserved Plan-wide. About half of the conservation would occur in the Imperial Borrego Valley subarea. Conservation would primarily come from BLM LUPA conservation designations, which are mostly ACECs. In addition, CMA application would require avoidance of all dunes and prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

Grasslands

Overall, approximately 24,000 acres (84%) of grasslands would be conserved under Alternative 1 on BLM Land, which is a much greater proportion of available lands compared to that conserved Plan-wide. The majority of conservation would occur in the Pinto Lucerne Valley and Eastern Slopes subarea. Conservation would primarily come from BLM LUPA conservation designations, which are mostly ACECs. In addition to conservation of grasslands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Riparian

Overall, approximately 479,000 acres (74%) of riparian communities would be conserved Alternative 1 on BLM Land, which is a greater proportion of available lands than is conserved Plan-wide. Most of the conservation would occur in the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas. Conservation would primarily come from BLM LUPA conservation designations, which are mostly ACECs. In addition, CMA application would require avoidance of and setbacks from all riparian communities as well as to other CMAs that would benefit riparian communities beyond simply conservation.

Wetlands

Overall, approximately 204,000 acres (69%) of wetland communities would be conserved under Alternative 1 on BLM Land, which is a slightly greater proportion of available lands than is conserved Plan-wide. Most of the conservation would occur in the West Mojave and Eastern Slopes, Cadiz Valley and Chocolate Mountains, and Kingston and Funeral Mountains subareas. Conservation would primarily come from BLM LUPA conservation designations, which are mostly ACECs. In addition, CMA application would require avoidance of and setbacks from Arid West freshwater emergent marsh and Californian warm temperate marsh/seep as well as other CMAs that would benefit riparian communities beyond simply conservation.

Table IV.7-125
BLM LUPA Conservation Analysis for Natural Communities – Alternative 1

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	NLCS (acres)[2]	ACEC (acres)	Wildlife Allocations (acres)	Total Conservation (acres)	% of Available Lands
California forest and woodland							
Californian broadleaf forest and woodland	11,000	600	300	100	8,000	9,000	86%
Californian montane conifer forest	34,000	18,000	2,000	5,000	4,000	29,000	86%
Chaparral and coastal scrub community (Cismontane scrub)							
Californian mesic chaparral	500	0	0	0	300	300	57%
Californian pre-montane chaparral	300	0	10	10	300	300	89%
Californian xeric chaparral	5,000	2,000	200	90	500	3,000	59%
Central and south coastal California seral scrub	20	0	0	10	0	10	76%
Central and South Coastal Californian coastal sage scrub	13,000	2,000	2,000	4,000	300	8,000	62%
Western Mojave and Western Sonoran Desert borderland chaparral	200	20	70	20	0	100	50%
Desert conifer woodlands							
Great Basin Pinyon - Juniper Woodland	50,000	27,000	7,000	7,000	600	41,000	82%
Desert outcrop and badlands							
North American warm desert bedrock cliff and outcrop	1,203,000	566,000	246,000	143,000	66,000	1,022,000	85%

Table IV.7-125
BLM LUPA Conservation Analysis for Natural Communities – Alternative 1

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	NLCS (acres)[2]	ACEC (acres)	Wildlife Allocations (acres)	Total Conservation (acres)	% of Available Lands
Desert Scrub							
Arizonan upland Sonoran desert scrub	3,000	1,000	200	300	40	2,000	63%
Intermontane deep or well-drained soil scrub	69,000	16,000	11,000	37,000	0	63,000	92%
Intermontane seral shrubland	5,000	10	1,000	2,000	0	4,000	66%
Inter-Mountain Dry Shrubland and Grassland	282,000	86,000	40,000	68,000	80	194,000	69%
Intermountain Mountain Big Sagebrush Shrubland and steppe	24,000	5,000	7,000	2,000	3,000	17,000	70%
Lower Bajada and Fan Mojavean - Sonoran desert scrub	6,114,000	2,003,000	849,000	1,890,000	354,000	5,096,000	83%
Mojave and Great Basin upper bajada and toeslope	406,000	165,000	62,000	129,000	600	356,000	88%
Shadscale - saltbush cool semi-desert scrub	101,000	17,000	11,000	42,000	4,000	74,000	73%
Southern Great Basin semi-desert grassland	50	0	0	40	0	40	82%
Dunes							
North American warm desert dunes and sand flats	127,000	34,000	15,000	38,000	6,000	93,000	73%

Table IV.7-125
BLM LUPA Conservation Analysis for Natural Communities – Alternative 1

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	NLCS (acres)[2]	ACEC (acres)	Wildlife Allocations (acres)	Total Conservation (acres)	% of Available Lands
Grassland							
California Annual and Perennial Grassland	28,000	10,000	4,000	10,000	1,000	24,000	85%
California annual forb/grass vegetation	1,000	0	100	600	0	700	58%
Riparian							
Madrean Warm Semi-Desert Wash Woodland/ Scrub	502,000	104,000	98,000	126,000	44,000	372,000	74%
Mojavean semi-desert wash scrub	11,000	1,000	500	8,000	60	9,000	87%
Sonoran-Coloradan semi-desert wash woodland/scrub	122,000	28,000	33,000	15,000	14,000	91,000	74%
Southwestern North American riparian evergreen and deciduous woodland	400	0	60	50	200	300	72%
Southwestern North American riparian/wash scrub	10,000	600	3,000	2,000	200	6,000	58%
Wetland							
Arid West freshwater emergent marsh	10	0	0	0	0	0	18%
Californian warm temperate marsh/seep	0	0	0	0	0	0	60%

Table IV.7-125
BLM LUPA Conservation Analysis for Natural Communities – Alternative 1

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	NLCS (acres)[2]	ACEC (acres)	Wildlife Allocations (acres)	Total Conservation (acres)	% of Available Lands
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	147,000	13,000	13,000	36,000	22,000	85,000	58%
Open Water	700	0	0	90	0	100	15%
Playa	26,000	300	70	800	23,000	25,000	94%
Southwestern North American salt basin and high marsh	122,000	2,000	10,000	80,000	2,000	94,000	77%
Wetland	100	0	0	10	0	10	4%
Other Land Cover							
Agriculture	6,000	0	80	800	10	900	16%
Developed and Disturbed Areas	44,000	200	500	900	300	2,000	4%
Not Mapped	800	0	0	60	0	60	8%
Rural	3,000	0	20	200	10	200	7%
Total	**9,471,000**	**3,101,000**	**1,415,000**	**2,649,000**	**555,000**	**7,721,000**	**82%**

[1] Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on BLM-administered land

[2] Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), on BLM-administered land

Notes: Conservation acreages reported for Existing Conservation and BLM LUPA conservation designations reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Overlaps of ACECs or Wildlife Allocations with NLCS designations are reported as NLCS designations. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Covered Species Habitat

Table IV.7-126 shows the conservation of Covered Species modeled habitat under the Alternative 1 (before the application of CMAs) under the BLM LUPA. Generally, the percent conservation of Covered Species modeled habitat in available lands is highly variable, ranging from 24% for greater sandhill crane to 91% for triple-ribbed milk-vetch.

Much of the modeled habitats for desert tortoise and Mojave fringe-toed lizard are in the Mojave Desert in areas that are either already in Existing Conservation, or occur in ACECs or wildlife allocations. Flat-tailed horned lizard modeled habitat is mainly conserved in the ACECs. Tehachapi slender salamander modeled habitat occurs in the Tehachapi Mountains where conservation is primarily composed of wildlife allocations. Furthermore, the siting of the DFAs under Alternative 1 largely avoids habitat for Mojave fringe-toed lizard and Tehachapi slender salamander, and CMAs require avoidance of and setbacks from riparian habitat, wetland habitat, and dune habitat would further avoid and minimize the impacts on these species.

Conservation of bird species associated primarily with wetland and riparian habitats, including California black rail, least Bell's vireo, southwestern willow flycatcher, tricolored blackbird, western yellow-billed cuckoo, and Yuma clapper rail would be augmented by CMAs requiring avoidance of and setbacks from riparian and wetland habitats. Conservation of Bendire's thrasher is mainly in existing conservation and ACECs. Burrowing owl, widespread, but mainly associated with open areas in the West Mojave and Eastern Slopes and agricultural areas in the Imperial Borrego Valley, would primarily be conserved in ACECs.

California condor mainly occurs in the West Mojave and Eastern Slopes subarea so the majority of conservation is also in this subarea with almost half of the conserved acreage in ACECs. Golden eagle modeled suitable habitat and associated conservation is widespread in the Plan Area with most of the conservation in existing conservation areas and ACECs. Swainson's hawk is primarily associated with the West Mojave and Eastern Slopes, Imperial Borrego Valley, and Owens River Valley subareas; the majority of suitable habitat conserved is in ACECs. In addition to conservation of suitable habitat, CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs.

About half of the modeled suitable habitat for Gila woodpecker is conserved in the Imperial Borrego Valley in wildlife allocations. Conservation of mountain plover suitable habitat is almost entirely within the ACECs.

Conservation of suitable habitat for desert pupfish is mostly in NLCSs. Although conservation of desert pupfish is relatively low, especially in the Imperial Borrego Valley

subarea, avoidance and setback provisions for managed wetlands and agricultural drains would conserve wetland and riparian features within the agricultural matrix and provide conservation benefits to desert pupfish. Owens pupfish and Owens tui chub are conserved primarily in existing conservation areas and ACECs.

Conservation of suitable habitat for bighorn sheep, both inter-mountain and mountain habitat, is widespread and is mainly in existing conservation areas. The siting of the DFAs under Alternative 1 largely avoid habitat for bighorn sheep. About half of the conservation from BLM LUPA conservation designations for burro deer are from NLCS areas. About 63% of the conservation from BLM LUPA conservation designations for desert kit fox are in ACECs. Most of the conservation of suitable habitat for Mohave ground squirrel is in ACECs. Suitable habitat for the covered bat species—California leaf-nosed bat, pallid bat, and Townsend's big-eared bat—is widespread and mainly conserved in existing conservation areas and ACECs. In addition to conservation of suitable habitat for covered mammal species, the CMAs require avoidance of and setbacks from riparian and wetland habitat that would reduce impacts on these habitats used by Mohave ground squirrel, California leaf-nosed bat, pallid bat, and Townsend's big-eared bat.

Conservation of plant species ranges from 30% of suitable habitat for Owens Valley checkerbloom to 91% of suitable habitat for Mojave monkeyflower. The proportion of suitable habitat conserved in existing conservation and BLM LUPA conservation designations varies by species. However, in addition to the conservation of modeled suitable habitat, the CMAs require surveys for plant Covered Species for all Covered Activities, and the CMAs requiring avoidance of and setbacks from occupied habitat would further reduce the impacts on these species.

In addition to conservation of suitable habitat for Covered Species, compensation CMAs would offset habitat loss for all Covered Species.

Table IV.7-126
BLM LUPA Conservation Analysis for Covered Species Habitat – Alternative 1

Species	Available Lands (acres)	Existing Conservation[1] (acres)	NLCS (acres)[2]	ACEC (acres)	Wildlife Allocation (acres)	Total Conservation (acres)	% of Available Lands
Amphibian/Reptile							
Agassiz's desert tortoise	5,799,000	1,869,000	862,000	2,030,000	204,000	4,965,000	86%
Flat-tailed horned lizard	428,000	36,000	29,000	219,000	-	284,000	66%
Mojave fringe-toed lizard	731,000	214,000	79,000	141,000	184,000	618,000	85%
Tehachapi slender salamander	7,000	-	700	500	5,000	6,000	83%
Bird							
Bendire's thrasher	773,000	266,000	160,000	227,000	4,000	656,000	85%
Burrowing owl	1,707,000	144,000	153,000	811,000	92,000	1,200,000	70%
California black rail	31,000	1,000	800	11,000	80	13,000	41%
California condor	242,000	37,000	37,000	84,000	18,000	176,000	73%
Gila woodpecker	38,000	700	7,000	2,000	14,000	24,000	63%
Golden eagle–foraging	6,216,000	2,539,000	1,001,000	1,552,000	247,000	5,339,000	86%
Golden eagle–nesting	2,421,000	1,334,000	381,000	319,000	86,000	2,119,000	88%
Greater sandhill crane	3,000	-	-	700	-	700	24%
Least Bell's vireo	69,000	28,000	11,000	17,000	1,000	57,000	82%
Mountain plover	7,000	80	80	2,000	10	2,000	33%
Southwestern willow flycatcher	46,000	5,000	2,000	14,000	3,000	24,000	54%
Swainson's hawk	112,000	6,000	1,000	32,000	-	40,000	36%

Table IV.7-126
BLM LUPA Conservation Analysis for Covered Species Habitat – Alternative 1

Species	Available Lands (acres)	Existing Conservation[1] (acres)	NLCS (acres)[2]	ACEC (acres)	Wildlife Allocation (acres)	Total Conservation (acres)	% of Available Lands
Tricolored blackbird	13,000	5,000	700	4,000	200	9,000	70%
Western yellow-billed cuckoo	19,000	4,000	2,000	4,000	-	9,000	51%
Yuma clapper rail	5,000	30	-	2,000	-	2,000	35%
Fish							
Desert pupfish	500	20	300	-	-	300	56%
Owens pupfish	4,000	600	20	500	-	1,000	29%
Owens tui chub	4,000	600	20	500	-	1,000	29%
Mammal							
Bighorn sheep – inter-mountain habitat	2,243,000	785,000	363,000	570,000	114,000	1,832,000	82%
Bighorn sheep – mountain habitat	3,568,000	1,821,000	592,000	546,000	169,000	3,128,000	88%
California leaf-nosed bat	4,444,000	1,442,000	724,000	1,221,000	315,000	3,702,000	83%
Mohave ground squirrel	999,000	104,000	43,000	630,000	8,000	785,000	79%
Pallid bat	8,943,000	3,024,000	1,354,000	2,503,000	487,000	7,369,000	82%
Townsend's big-eared bat	7,599,000	2,330,000	1,128,000	2,227,000	476,000	6,161,000	81%
Plant							
Alkali mariposa-lily	2,000	-	10	700	-	700	45%
Bakersfield cactus	77,000	3,000	14,000	35,000	3,000	55,000	71%

Table IV.7-126
BLM LUPA Conservation Analysis for Covered Species Habitat – Alternative 1

Species	Available Lands (acres)	Existing Conservation[1] (acres)	NLCS (acres)[2]	ACEC (acres)	Wildlife Allocation (acres)	Total Conservation (acres)	% of Available Lands
Barstow woolly sunflower	72,000	400	10	64,000	-	64,000	89%
Desert cymopterus	67,000	4,000	-	53,000	-	57,000	86%
Little San Bernardino Mountains linanthus	80,000	6,000	6,000	20,000	10,000	42,000	53%
Mojave monkeyflower	116,000	23,000	16,000	66,000	-	105,000	91%
Mojave tarplant	136,000	29,000	23,000	51,000	4,000	108,000	79%
Owens Valley checkerbloom	55,000	12,000	400	4,000	-	16,000	30%
Parish's daisy	85,000	34,000	15,000	21,000	700	71,000	83%
Triple-ribbed milk-vetch	4,000	4,000	-	-	-	4,000	91%

[1] Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on BLM-administered land

[2] Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), on BLM-administered land.

Notes: Conservation acreages reported for Existing Conservation and BLM LUPA conservation designations reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Overlaps of ACECs or Wildlife Allocations with NLCS designations are reported as NLCS designations. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For Agassiz's desert tortoise, desert tortoise important areas were identified that include tortoise conservation areas (TCAs), desert tortoise linkages, and desert tortoise high priority habitat (see desert tortoise BGOs in Appendix C). Table IV.7-127 provides a conservation analysis for these desert tortoise important areas, organized by desert tortoise Recovery Units: Colorado Desert, Eastern Mojave, and Western Mojave. Within the Colorado Desert Recovery Unit, 92% of TCAs, linkage habitat, and high priority habitat would be conserved under Alternative 1. Within the Eastern Mojave Recovery Unit, 93% of the important areas would be conserved Alternative 1. Within the Western Mojave Recovery Unit, 87% of TCAs and linkage habitat would be conserved under Alternative 1. CMAs would require avoidance of TCAs, except for impacts associated with transmission or impacts in disturbed portions of TCAs. Additionally, the CMAs would prohibit impacts that affect the viability of desert tortoise linkages. Compensation CMAs would be required for impacts to desert tortoise, including desert tortoise important areas.

Table IV.7-127
BLM LUPA Conservation Analysis for Desert Tortoise Important Areas – Alternative 1

Recovery Unit	Desert Tortoise Important Area	Available Lands (acres)	Existing Conservation[1] (acres)	NLCS (acres)[2]	ACEC (acres)	Wildlife Allocation (acres)	Total Conservation (acres)	% of Available Lands
Colorado Desert	High Priority Habitat	354,000	156,000	50,000	55,000	37,000	298,000	84%
	Linkage	406,000	126,000	15,000	111,000	126,000	377,000	93%
	TCA	1,728,000	454,000	551,000	571,000	37,000	1,613,000	93%
Colorado Desert Total		*2,488,000*	*735,000*	*616,000*	*737,000*	*199,000*	*2,288,000*	*92%*
Eastern Mojave	Linkage	728,000	418,000	134,000	119,000	-	671,000	92%
	TCA	239,000	56,000	20,000	148,000	-	224,000	94%
Eastern Mojave Total		*967,000*	*474,000*	*153,000*	*267,000*	-	*895,000*	*93%*
Western Mojave	Linkage	796,000	387,000	81,000	151,000	13,000	631,000	79%
	TCA	964,000	129,000	72,000	700,000	-	902,000	94%
Western Mojave Total		*1,759,000*	*517,000*	*153,000*	*852,000*	*13,000*	*1,534,000*	*87%*
Grand Total		**5,215,000**	**1,726,000**	**923,000**	**1,856,000**	**212,000**	**4,717,000**	**90%**

[1] Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on BLM-administered land.

[2] Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), on BLM-administered land

Notes: Conservation acreages reported for Existing Conservation and BLM LUPA conservation designations reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Overlaps of ACECs or Wildlife Allocations with NLCS designations are reported as NLCS designations. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For Mohave ground squirrel, Mohave ground squirrel important areas were identified that include key population centers, linkages, expansion areas, and climate change extension areas (see Mohave ground squirrel BGOs in Appendix C). Table IV.7-128 provides a conservation analysis for these Mohave ground squirrel important areas. Approximately 88% of key populations centers and 74% of linkages would be conserved under Alternative 1. Expansion areas and climate change extension areas would be conserved at 90% and 67% respectively. The CMAs would prohibit impacts that affect the viability of linkages. Compensation CMAs would be required for impacts to Mohave ground squirrel, including Mohave ground squirrel important areas.

Table IV.7-128
BLM LUPA Conservation Analysis for Mohave Ground Squirrel Important Areas – Alternative 1

Mohave Ground Squirrel Important Area Type	Available Lands (acres)	Existing Conservation[1] (acres)	NLCS (acres)[2]	ACEC (acres)	Wildlife Allocation (acres)	Total Conservation (acres)	% of Available Lands
Key Population Center	299,000	18,000	20,000	216,000	10,000	264,000	88%
Linkage	280,000	24,000	5,000	178,000	-	207,000	74%
Expansion Area	282,000	45,000	13,000	197,000	-	255,000	90%
Climate Change Extension	92,000	14,000	16,000	32,000	-	62,000	67%
Total	**954,000**	**101,000**	**54,000**	**622,000**	**10,000**	**788,000**	**83%**

[1] Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on BLM-administered land

[2] Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), on BLM-administered land

Notes: Conservation acreages reported for Existing Conservation and BLM LUPA conservation designations reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Overlaps of ACECs or Wildlife Allocations with NLCS designations are reported as NLCS designations. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Within the Plan Area, critical habitat has been designated by the USFWS for the following Covered Species: desert tortoise, southwestern willow flycatcher, desert pupfish, and Parish's daisy. For desert tortoise, approximately 93% of the desert tortoise designated

critical habitat on BLM-administered lands would be conserved under Alternative 1, including 606,000 acres in existing conservation areas and 1,874,000 acres in BLM LUPA conservation designations. For southwestern willow flycatcher, approximately 95% of the southwestern willow flycatcher designated critical habitat on BLM-administered lands would be conserved in Reserve Design Lands under Alternative 1, including 300 acres in existing conservation areas and 40 acres in BLM LUPA conservation designations. For desert pupfish, approximately 95% of the desert pupfish designated critical habitat on BLM-administered lands would be conserved in Reserve Design Lands under Alternative 1, including 20 acres in existing conservation areas and 400 acres in BLM LUPA conservation designations. For Parish's daisy, approximately 93% of the Parish's daisy designated critical habitat on BLM-administered lands would be conserved in Reserve Design Lands under Alternative 1, including 900 acres in BLM LUPA conservation designations.

Non-Covered Species Critical Habitat

Ten Non-Covered Species have Critical Habitat within BLM LUPA Lands. Table IV.7-129 shows the total amount of Critical Habitat and the amount within each LUPA conservation designation for Non-Covered Species. These conservation designations are considered beneficial impacts for biological resources. With the exception of arroyo toad, all or a substantial portion of each species' Critical Habitat in the BLM LUPA Lands would be within one of the conservation designations. Critical Habitat for bighorn sheep occurs mostly within existing conservation, but mostly within Areas of Critical Environmental Concern for the other species. Critical Habitat for the Pierson's milk-vetch is managed under the Imperial Sand Dunes RAMP, which provides protections for critical habitat within conservation areas and areas designated as closed to motorized (e.g. off-highway vehicle) use.

Table IV.7-129
Critical Habitat Within BLM LUPA Conservation Designations for Non-Covered Species – Alternative 1

Common Name	Acres of Critical Habitat within BLM LUPA Lands	Existing Conservation	NLCS (acres)	ACEC (acres)	Wildlife Allocations (acres)	Total in Conservation
Amargosa nitrophila	1,000	0	0	1,000	0	1,000
Amargosa vole	4,000	1,000	2,000	0	0[1]	3,000
Arroyo toad	30	0	0	0	0	0
Ash Meadows gumplant	300	0	0	300	0	300

Table IV.7-129
Critical Habitat Within BLM LUPA Conservation Designations for Non-Covered Species – Alternative 1

Common Name	Acres of Critical Habitat within BLM LUPA Lands	Existing Conservation	NLCS (acres)	ACEC (acres)	Wildlife Allocations (acres)	Total in Conservation
Cushenbury buckwheat	400	0	20	400	0	420
Cushenbury milk-vetch	900	0	60	800	0	860
Cushenbury oxytheca	80	0	0	80	0	80
Lane Mountain milk-vetch	10,000	50	0	10,000	0	10,050
Pierson's milk-vetch	12,000	12,000[2]	0		0	12,000
Peninsular Bighorn sheep	7,000	5,000	0	400	0	5,400

[1] NLCS and ACEC designations overlap, the entire Amargosa Valley, which contains the Amargosa vole critical habitat, is located within an ACEC.

[2] Pierson's milk-vetch are protected within areas designated as closed to motorized vehicles in the Imperial Sand Dunes RAMP. The ISDRA RAMP is not considered part of the DRECP decision area.

IV.7.3.3.3 Impacts of Natural Community Conservation Plan: Alternative 1

The impacts and mitigation measures for renewable energy and transmission development of the NCCP for Alternative 1would be the same as those defined in Section IV.7.3.3.1 for the Plan-wide analysis.

As described in Section II.3.3 of Volume II, the NCCP would establish conservation designations within the Reserve Design Lands under each alternative. To reflect the conservation that would occur under the NCCP, the NCCP elements of each alternative define the following means of providing conservation within Reserve Design Lands:

- An **NCCP Conceptual Plan-Wide Reserve Design**, which defines the areas that are considered to be the highest priority for biological conservation. These priority conservation areas include both BLM lands and other lands, including private land and nonfederal public land. These priority conservation areas are consistent with those identified in the interagency plan-wide alternatives.
- A **DRECP NCCP Reserve Design**, which nested within the NCCP Conceptual Plan-Wide Reserve Design. The DRECP NCCP Reserve Design identifies those lands within BLM LUPA conservation designations that would be protected, maintained, and

managed to preserve their conservation value for Covered Species for at least the duration of the NCCP. Within non-BLM lands, areas identified within the DRECP NCCP Reserve Design would be given a high priority for conservation through the purchase of private lands from willing sellers or placement of conservation easements on public lands. BLM lands and non-BLM Lands included in the DRECP NCCP Reserve Design would receive long-term protection and would be conserved and managed to preserve and enhance habitat for Covered Species.

- **Other conservation actions**, which would occur outside of the DRECP NCCP Reserve Design and NCCP Conceptual Plan-Wide Reserve Design and include the maintenance and management of all of the BLM LUPA conservation designation lands in accordance with the BLM LUPA conservation designations.

The following provides the conservation analysis for the NCCP.

Landscape

Habitat Linkages

Table IV.7-130 shows the conservation of the desert linkage network under Alternative 1 for the NCCP. Conservation of the desert linkage network totals more than 2.6 million acres (71%). Approximately 139,000 acres of the desert linkage network would be inside the DRECP NCCP Reserve Design (106,000 acres on BLM Land and 33,000 acres on non-BLM land). Approximately 612,000 acres of the desert linkage network would be inside the NCCP Conceptual Plan-Wide Reserve Design and 1,324,000 acres would be outside the NCCP Conceptual Plan-Wide Reserve Design. In addition to conservation of the desert linkage network, CMAs provide for the avoidance and minimization of certain linkages in the DFAs (see Section IV.7.3.2.2.1).

Table IV.7-130
NCCP Conservation Analysis for the Desert Linkage Network – Alternative 1

Desert Linkage Network by Ecoregion Subarea	Existing Conservation (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the DRECP NCCP Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Cadiz Valley and Chocolate Mountains	187,000	11,000	31,000	4,000	39,000	433,000	11,000	716,000
Imperial Borrego Valley	14,000	-	28,000	-	800	77,000	900	120,000
Kingston and Funeral Mountains	28,000	-	-	-	-	111,000	3,000	142,000
Mojave and Silurian Valley	179,000	-	38,000	-	7,000	155,000	10,000	390,000
Owens River Valley	40	-	11,000	-	3,000	60	20	14,000
Panamint Death Valley	109,000	-	32,000	-	2,000	43,000	700	186,000
Pinto Lucerne Valley and Eastern Slopes	16,000	56,000	21,000	15,000	5,000	43,000	6,000	162,000
Piute Valley and Sacramento Mountains	14,000	-	-	-	2,000	92,000	2,000	110,000

Table IV.7-130
NCCP Conservation Analysis for the Desert Linkage Network – Alternative 1

Desert Linkage Network by Ecoregion Subarea	Existing Conservation (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the DRECP NCCP Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Providence and Bullion Mountains	144,000	-	300	-	50	213,000	9,000	365,000
West Mojave and Eastern Slopes	45,000	39,000	171,000	14,000	83,000	91,000	25,000	467,000
Grand Total	**736,000**	**106,000**	**331,000**	**33,000**	**142,000**	**1,256,000**	**68,000**	**2,672,000**

Notes: Conservation acreages reported for Existing Conservation and BLM LUPA conservation designations reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Hydrological Resources

A conservation analysis for hydrological resources is provided below, including playa, seep/spring, and the four major rivers in the Plan Area (i.e., Amargosa, Colorado, Mojave and Owens) for Alternative 1 under the NCCP. Conservation of riparian areas and wetlands, which co-occur with many of these hydrological resources is provided below under Natural Communities.

Playa

Overall, approximately 190,000 acres would be conserved under Alternative 1 under the NCCP. Approximately 600 acres are within the DRECP NCCP Reserve Design (approximately 300 on BLM land and approximately 200 acres on non-BLM land). Approximately 4,000 acres of the playa acreage conserved is inside NCCP Conceptual Plan-Wide Reserve Design and approximately 92,000 acres are outside the NCCP Conceptual Plan-Wide Reserve Design. Additionally, playas and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks. CMAs for playas would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided riparian or wetland natural communities.

Seep/Spring

Overall, 307 locations of the seep/spring locations would be conserved under Alternative 1 under the NCCP. There are 9 seep/spring locations within the DRECP NCCP Reserve Design (5 on BLM land and 4 on non-BLM land). Approximately 42 seep/spring locations are inside NCCP Conceptual Plan-Wide Reserve Design and approximately 74 seep/spring locations are outside the NCCP Conceptual Plan-Wide Reserve Design. Seeps and springs and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks. CMAs for seep/spring locations would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided wetland natural communities.

Major Rivers

None of the major rivers are conserved within the DRECP NCCP Reserve Design. Approximately 669,000 feet of the major rivers (Amargosa, Colorado, and Mojave) are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 126,000

feet of the Amargosa River are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. Major rivers and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks.

Dune and Sand Resources

Approximately half of the dunes and sand resources would be conserved in existing conservation areas under the NCCP. Approximately 5,000 acres are within the DRECP NCCP Reserve Design (approximately 4,000 acres on BLM land and approximately 1,000 acres on non-BLM land). Approximately 72,000 acres of the dunes and sand resources are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 513,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. Dunes and sand resources and associated Covered Species, natural communities, and ecological functions would be avoided through application of the dune avoidance and minimization CMAs.

Environmental Gradients

The conservation analysis addresses four types of environmental gradients in the Plan Area: elevation, landforms, slope, and aspect. The conservation of these four environmental gradients under Alternative 1 under the NCCP would follow the same overall pattern as Plan-wide conservation.

Natural Communities

Table IV.7-131 shows the conservation to natural communities under the NCCP. A conservation summary by general community is provided below in comparison to Plan-wide conservation discussed in Section IV.7.3.2.1.2.

California forest and woodlands

Overall, approximately 63,000 acres (42%) of California forest and woodlands would be conserved under Alternative 1 under the NCCP. Approximately 2,000 acres are within the DRECP NCCP Reserve Design (approximately 2,000 acres on BLM land and approximately 200 acres on non-BLM land). Approximately 2,000 acres of California forest and woodlands are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 34,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. In addition to conservation of California forest and woodlands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 32,000 acres (30%) of chaparral and coastal scrubs would be conserved under Alternative 1 under the NCCP. Approximately 3,000 acres are within the DRECP NCCP Reserve Design (approximately 2,000 acres on BLM land and approximately 1,000 acres on non-BLM land). Approximately 5,000 acres of chaparral and coastal scrubs are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 13,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. In addition to conservation of chaparral and coastal scrubs, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert conifer woodlands

Overall, approximately 187,000 acres (65%) of desert conifer woodlands would be conserved under Alternative 1 under the NCCP. Approximately 2,000 acres are within the DRECP NCCP Reserve Design (approximately 2,000 acres on BLM land and approximately 300 acres on non-BLM land). Approximately 2,000 acres of desert conifer woodlands are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 26,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. In addition to conservation of desert conifer woodlands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert outcrop and badlands

Overall, approximately 1,299,000 acres (80%) of desert outcrop and badlands would be conserved under Alternative 1 under the NCCP. Approximately 2,000 acres are within the DRECP NCCP Reserve Design (approximately 2,000 acres on BLM land and approximately 700 acres on non-BLM land). Approximately 88,000 acres of desert outcrop and badlands are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 409,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. In addition to conservation of desert outcrop and badlands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert scrubs

Overall, approximately 9,690,000 acres (73%) of desert scrubs would be conserved under Alternative 1 under the NCCP. Approximately 198,000 acres are within the DRECP NCCP Reserve Design (approximately 143,000 acres on BLM land and approximately 55,000 acres on non-BLM land). Approximately 1,181,000 acres of desert scrubs are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 2,880,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. In addition to conservation of desert scrubs, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Dunes

Overall, approximately 214,000 acres (76%) of dunes would be conserved under Alternative 1 under the NCCP. Approximately 60 acres are within the DRECP NCCP Reserve Design (all on non-BLM land). Approximately 27,000 acres of dunes are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 41,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. In addition, CMA application would require avoidance of all dunes and prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

Grasslands

Overall, approximately 57,000 acres (24%) of grasslands would be conserved under Alternative 1 under the NCCP. Approximately 6,000 acres are within the DRECP NCCP Reserve Design (approximately 5,000 acres on BLM land and approximately 700 acres on non-BLM land). Approximately 13,000 acres of grasslands are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 21,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. In addition to conservation of grasslands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Riparian

Overall, approximately 679,000 acres (68%) of riparian communities would be conserved under Alternative 1 under the NCCP. Approximately 7,000 acres are within the DRECP NCCP Reserve Design (approximately 6,000 acres on BLM land and approximately 1,000 acres on non-BLM land). Approximately 90,000 acres of riparian are conserved inside

NCCP Conceptual Plan-Wide Reserve Design and approximately 310,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. In addition, CMA application would require avoidance of and setbacks from all riparian communities as well as to other CMAs that would benefit riparian communities beyond simply conservation.

Wetlands

Overall, approximately 454,000 acres (52%) of wetland communities would be conserved under Alternative 1 under the NCCP. Approximately 21,000 acres are within the DRECP NCCP Reserve Design (approximately 16,000 acres on BLM land and approximately 6,000 acres on non-BLM land). Approximately 78,000 acres of wetlands are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 187,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. In addition, CMA application would require avoidance of and setbacks from Arid West freshwater emergent marsh and Californian warm temperate marsh/seep as well as other CMAs that would benefit riparian communities beyond simply conservation.

Table IV.7-131
NCCP Conservation Analysis for Natural Communities – Alternative 1

Natural Community	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
California forest and woodland								
Californian broadleaf forest and woodland	1,000	0	30	0	10	9,000	11,000	21,000
Californian montane conifer forest	25,000	2,000	90	200	30	9,000	6,000	42,000
Chaparral and coastal scrub community (Cismontane scrub)								
Californian mesic chaparral	20	0	0	0	0	300	600	900
Californian pre-montane chaparral	0	0	0	0	0	300	200	500
Californian xeric chaparral	3,000	30	10	0	10	700	3,000	7,000
Central and south coastal California seral scrub	0	0	0	0	0	10	50	70
Central and South Coastal Californian coastal sage scrub	2,000	2,000	2,000	1,000	300	3,000	4,000	14,000

Table IV.7-131
NCCP Conservation Analysis for Natural Communities – Alternative 1

Natural Community	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Western Mojave and Western Sonoran Desert borderland chaparral	9,000	0	0	0	0	80	900	10,000
Desert conifer woodlands								
Great Basin Pinyon - Juniper Woodland	159,000	2,000	200	300	200	12,000	13,000	187,000
Desert outcrop and badlands								
North American warm desert bedrock cliff and outcrop	802,000	2,000	62,000	700	23,000	391,000	17,000	1,299,000
Desert Scrub								
Arizonan upland Sonoran desert scrub	44,000	0	0	0	400	2,000	400	47,000
Intermontane deep or well-drained soil scrub	30,000	8,000	30,000	2,000	2,000	9,000	2,000	83,000
Intermontane seral shrubland	1,000	2,000	800	500	900	700	3,000	9,000

Table IV.7-131
NCCP Conservation Analysis for Natural Communities – Alternative 1

Natural Community	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Inter-Mountain Dry Shrubland and Grassland	110,000	2,000	49,000	200	9,000	57,000	14,000	241,000
Intermountain Mountain Big Sagebrush Shrubland and steppe	9,000	0	200	0	200	12,000	7,000	29,000
Lower Bajada and Fan Mojavean - Sonoran desert scrub	4,561,000	111,000	595,000	50,000	238,000	2,391,000	155,000	8,101,000
Mojave and Great Basin upper bajada and toeslope	838,000	20,000	44,000	3,000	4,000	127,000	28,000	1,063,000
Shadscale - saltbush cool semi-desert scrub	38,000	40	2,000	10	7,000	55,000	17,000	119,000
Southern Great Basin semi-desert grassland	0	0	0	0	0	40	0	40

Table IV.7-131
NCCP Conservation Analysis for Natural Communities – Alternative 1

Natural Community	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Dunes								
North American warm desert dunes and sand flats	146,000	0	24,000	60	2,000	35,000	6,000	214,000
Grassland								
California Annual and Perennial Grassland	23,000	5,000	1,000	700	5,000	8,000	12,000	55,000
California annual forb/grass vegetation	400	80	300	60	100	300	1,000	2,000
Riparian								
Madrean Warm Semi-Desert Wash Woodland/Scrub	195,000	90	27,000	20	23,000	241,000	8,000	494,000
Mojavean semi-desert wash scrub	7,000	300	4,000	200	1,000	4,000	1,000	18,000
Riparian	20	0	0	0	300	0	10	300

Table IV.7-131
NCCP Conservation Analysis for Natural Communities – Alternative 1

Natural Community	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Sonoran-Coloradan semi-desert wash woodland/scrub	70,000	5,000	10,000	1,000	4,000	48,000	2,000	141,000
Southwestern North American riparian evergreen and deciduous woodland	500	10	10	50	1,000	300	500	3,000
Wetland								
Arid West freshwater emergent marsh	40	0	0	0	800	0	400	1,000
Californian warm temperate marsh/seep	0	0	0	0	0	0	80	80
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	136,000	300	5,000	200	800	66,000	5,000	213,000
Open Water	23,000	0	20	0	2,000	80	23,000	48,000
Playa	400	0	0	0	2,000	24,000	10,000	36,000

Table IV.7-131
NCCP Conservation Analysis for Natural Communities – Alternative 1

Natural Community	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Southwestern North American salt basin and high marsh	31,000	16,000	30,000	5,000	16,000	47,000	11,000	155,000
Wetland	30	0	0	100	100	10	400	700
Other Land Cover								
Agriculture	6,000	60	600	0	5,000	200	3,000	14,000
Developed and Disturbed Areas	3,000	20	300	10	200	1,000	2,000	7,000
Not Mapped	200	0	40	0	200	20	300	800
Rural	900	10	60	100	2,000	100	10,000	13,000
Total	**7,279,000**	**177,000**	**893,000**	**65,000**	**360,000**	**3,556,000**	**380,000**	**12,709,000**

[1] Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs)

Notes: Conservation acreages reported reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Covered Species Habitat

Table IV.7-132 shows the conservation of Covered Species modeled habitat under Alternative 1 before the application of CMAs under the NCCP. Generally, the percent conservation of Covered Species modeled habitat in available lands is highly variable, ranging from 1% for greater sandhill crane (primarily found in agricultural areas) to 83% for bighorn sheep mountain habitat.

None of the modeled habitat for flat-tailed horned lizard and Tehachapi slender salamander is inside the DRECP NCCP Reserve Design. Less than 5% each of the total suitable habitats conserved for Agassiz's desert tortoise and Mojave fringe-toed lizard are inside the DRECP NCCP Reserve Design. None of the suitable habitat for Tehachapi slender salamander is inside the NCCP Conceptual Plan-Wide Reserve Design. Flat-tailed horned lizard is the only amphibian/reptile species with a substantial percentage of its conserved suitable habitat inside the NCCP Conceptual Plan-Wide Reserve Design. Over half of the conserved suitable habitat for Mojave fringe-toed lizard is outside the NCCP Conceptual Plan-Wide Reserve Design. Almost all of the conserved suitable habitat for Tehachapi slender salamander is outside the NCCP Conceptual Plan-Wide Reserve Design. Furthermore, the siting of the DFAs under Alternative 1 largely avoids habitat for Mojave fringe-toed lizard and Tehachapi slender salamander, and CMAs require avoidance of and setbacks from riparian habitat, wetland habitat, and dune habitat would further avoid and minimize the impacts on these species.

California condor, burrowing owl, and tricolored blackbird have the greatest proportion of their conserved suitable habitat conserved inside the DRECP NCCP Reserve Design compared to other bird species. On the other hand, California black rail, greater sandhill crane, and Yuma clapper rail have no suitable habitat conserved inside the DRECP NCCP Reserve Design. Conservation of bird species habitat conserved inside the NCCP Conceptual Plan-Wide Reserve Design ranges from 6% of conserved suitable golden eagle nesting habitat and Bendire's thrasher conserved suitable habitat to 47% of western yellow-billed cuckoo conserved suitable habitat. Conservation outside of the NCCP Conceptual Plan-Wide Reserve Design ranges from 3% of conserved greater sandhill crane suitable modeled habitat to 59% of conserved Gila woodpecker suitable modeled habitat. Conservation of bird species associated primarily with wetland and riparian habitats (i.e., California black rail, least Bell's vireo, southwestern willow flycatcher, tricolored blackbird, western yellow-billed cuckoo, and Yuma clapper rail) would be augmented by CMAs requiring avoidance of and setbacks from riparian and wetland habitats. In addition to conservation of suitable habitat, CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs.

None of the modeled suitable habitat for fish species is inside the DRECP NCCP Reserve Design. Approximately 10% of the modeled suitable habitat for desert pupfish and

Mojave tui chub is inside the NCCP Conceptual Plan-Wide Reserve Design. While 50% of the conserved suitable habitat for desert pupfish is outside of the NCCP Conceptual Plan-Wide Reserve Design, none of the conserved suitable habitat for Mohave tui chub is outside of the NCCP Conceptual Plan-Wide Reserve Design. About 70% of the conserved suitable habitat for Owens pupfish and Owens tui chub is inside the NCCP Conceptual Plan-Wide Reserve Design and 21% is outside. Avoidance and setback provisions for managed wetlands and agricultural drains would conserve wetland and riparian features within the agricultural matrix and provide conservation benefits to desert pupfish.

Only 1-2% of the conserved suitable habitat for bat Covered Species and bighorn sheep is inside the DRECP NCCP Reserve Design while 8% of conserved suitable habitat for Mohave ground squirrel is inside the DRECP NCCP Reserve Design. There is also 54% of the conserved suitable habitat for Mohave ground squirrel inside the NCCP Conceptual Plan-Wide Reserve Design (28% outside). Conserved suitable habitat for bat Covered Species are 6-12% inside the NCCP Conceptual Plan-Wide Reserve Design (31-38% outside). Approximately 4-7% of the conserved suitable habitat for bighorn sheep (inter-mountain and mountain habitat) is inside the NCCP Conceptual Plan-Wide Reserve Design while 22-31% is outside of it. The siting of the DFAs under Alternative 1 largely avoid habitat for bighorn sheep. In addition to conservation of suitable habitat for covered mammal species, the CMAs require avoidance of and setbacks from riparian and wetland habitat that would reduce impacts on these habitats used by Mohave ground squirrel, California leaf-nosed bat, pallid bat, and Townsend's big-eared bat.

Conservation of suitable habitat for plant species inside the DRECP NCCP Reserve Design ranges from 0% for triple-ribbed milk-vetch to 34% for Barstow woolly sunflower. Conservation of suitable habitat for plant species inside the NCCP Conceptual Plan-Wide Reserve Design ranges from 0% for triple-ribbed milk-vetch to 91% for Barstow woolly sunflower. In addition to the conservation of modeled suitable habitat, the CMAs require surveys for plant Covered Species for all Covered Activities, and the CMAs requiring avoidance of and setbacks from occupied habitat would further reduce the impacts on these species.

In addition to conservation of suitable habitat for Covered Species, compensation CMAs would offset habitat loss for all Covered Species.

Table IV.7-132
NCCP Conservation Analysis for Covered Species Habitat – Alternative 1

Species	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Amphibian/Reptile								
Agassiz's desert tortoise	3,711,000	131,000	488,000	57,000	263,000	2,477,000	169,000	7,296,000
Flat-tailed horned lizard	151,000	-	223,000	-	23,000	25,000	5,000	427,000
Mojave fringe-toed lizard	403,000	4,000	12,000	600	5,000	388,000	21,000	834,000
Tehachapi slender salamander	300	-	-	-	-	6,000	7,000	14,000
Bird								
Bendire's thrasher	1,196,000	54,000	39,000	12,000	8,000	299,000	40,000	1,648,000
Burrowing owl	479,000	126,000	414,000	41,000	261,000	510,000	109,000	1,941,000
California black rail	21,000	-	5,000	-	5,000	2,000	2,000	36,000
California condor	81,000	40,000	23,000	8,000	10,000	75,000	63,000	300,000
Gila woodpecker	10,000	-	2,000	-	3,000	29,000	300	44,000
Golden eagle–foraging	5,518,000	216,000	397,000	41,000	161,000	2,219,000	144,000	8,696,000

Table IV.7-132
NCCP Conservation Analysis for Covered Species Habitat – Alternative 1

Species	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Golden eagle–nesting	2,689,000	66,000	128,000	10,000	28,000	599,000	77,000	3,597,000
Greater sandhill crane	6,000	-	600	-	2,000	50	100	8,000
Least Bell's vireo	86,000	1,000	5,000	900	14,000	24,000	9,000	140,000
Mountain plover	7,000	200	1,000	600	7,000	500	6,000	23,000
Southwestern willow flycatcher	18,000	2,000	10,000	200	19,000	7,000	13,000	69,000
Swainson's hawk	24,000	5,000	14,000	700	41,000	13,000	51,000	148,000
Tricolored blackbird	11,000	2,000	800	300	9,000	2,000	9,000	33,000
Western yellow-billed cuckoo	15,000	20	2,000	-	21,000	3,000	8,000	49,000
Yuma clapper rail	10,000	-	600	-	2,000	700	400	13,000
Fish								
Desert pupfish	900	-	90	-	10	200	300	1,000
Mohave tui chub	200	-	-	-	20	-	-	200
Owens pupfish	600	-	500	-	3,000	60	1,000	5,000
Owens tui chub	700	-	500	-	3,000	60	1,000	5,000

Table IV.7-132
NCCP Conservation Analysis for Covered Species Habitat – Alternative 1

Species	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Mammal								
Bighorn sheep – inter-mountain habitat	1,904,000	7,000	158,000	5,000	34,000	884,000	46,000	3,037,000
Bighorn sheep – mountain habitat	4,085,000	68,000	125,000	19,000	35,000	1,117,000	81,000	5,530,000
California leaf-nosed bat	3,138,000	33,000	200,000	8,000	71,000	2,032,000	100,000	5,581,000
Mohave ground squirrel	216,000	67,000	358,000	35,000	200,000	256,000	81,000	1,213,000
Pallid bat	6,836,000	158,000	829,000	59,000	334,000	3,364,000	297,000	11,876,000
Townsend's big-eared bat	5,879,000	136,000	754,000	45,000	292,000	2,947,000	306,000	10,360,000
Plant								
Alkali mariposa-lily	200	700	10	70	-	-	8,000	9,000
Bakersfield cactus	20,000	-	21,000	-	2,000	30,000	22,000	96,000
Barstow woolly sunflower	3,000	25,000	36,000	9,000	21,000	3,000	3,000	100,000
Desert cymopterus	7,000	1,000	40,000	1,000	31,000	12,000	12,000	105,000

Table IV.7-132
NCCP Conservation Analysis for Covered Species Habitat – Alternative 1

Species	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Little San Bernardino Mountains linanthus	87,000	10,000	-	2,000	-	26,000	9,000	134,000
Mojave monkeyflower	27,000	4,000	60,000	2,000	6,000	18,000	2,000	120,000
Mojave tarplant	48,000	10	41,000	10	12,000	37,000	8,000	147,000
Owens Valley checkerbloom	13,000	-	1,000	-	11,000	3,000	11,000	39,000
Parish's daisy	82,000	14,000	90	4,000	30	23,000	5,000	128,000
Triple-ribbed milk-vetch	5,000	-	-	-	-	-	400	5,000

[1] Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs)

Notes: Conservation acreages reported reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For Agassiz's desert tortoise, desert tortoise important areas were identified that include tortoise conservation areas (TCAs), desert tortoise linkages, and desert tortoise high priority habitat (see desert tortoise BGOs in Appendix C). Table IV.7-133 provides a conservation analysis for these desert tortoise important areas under the NCCP, organized by desert tortoise Recovery Units: Colorado Desert, Eastern Mojave, and Western Mojave. Overall, approximately 189,000 acres of the desert tortoise important areas are inside the DRECP NCCP Reserve Design (137,000 acres on BLM land and 52,000 acres on non-BLM land). Approximately 812,000 acres of desert tortoise important areas are inside the NCCP Conceptual Plan-Wide Reserve Design and 2,547,000 acres are outside of it. CMAs would require avoidance of TCAs, except for impacts associated with transmission or impacts in disturbed portions of TCAs. Additionally, the CMAs would prohibit impacts that affect the viability of desert tortoise linkages. Compensation CMAs would be required for impacts to desert tortoise, including desert tortoise important areas.

For Mohave ground squirrel, Mohave ground squirrel important areas were identified that include key population centers, linkages, expansion areas, and climate change extension areas (see Mohave ground squirrel BGOs in Appendix C). Table IV.7-134 provides a conservation analysis for these Mohave ground squirrel important areas under the NCCP. Approximately 99,000 acres of the Mohave ground squirrel important areas are inside the DRECP NCCP Reserve Design (66,000 acres on BLM land and 33,000 acres on non-BLM land). Approximately 617,000 acres of Mohave ground squirrel important areas are inside the NCCP Conceptual Plan-Wide Reserve Design and 333,000 acres are outside of it. The CMAs would prohibit impacts that affect the viability of linkages. Compensation CMAs would be required for impacts to Mohave ground squirrel, including Mohave ground squirrel important areas.

Table IV.7-133
NCCP Conservation Analysis for Desert Tortoise Important Areas – Alternative 1

Recovery Unit	Desert Tortoise Important Areas	Existing Conservation [1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-wide Reserve Design (acres)		Total Conservation (acres)
			Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Colorado Desert	High Priority Habitat	157,000	6,000	34,000	3,000	2,000	103,000	5,000	309,000
	Linkage	126,000	7,000	8,000	1,000	500	235,000	11,000	389,000
	TCA	1,544,000	19,000	20,000	3,000	51,000	1,120,000	35,000	2,793,000
Colorado Desert Total		1,827,000	33,000	62,000	8,000	54,000	1,458,000	50,000	3,491,000
Eastern Mojave	Linkage	421,000	-	-	-	-	253,000	10,000	685,000
	TCA	1,758,000	-	-	-	-	168,000	13,000	1,938,000
Eastern Mojave Total		*2,179,000*	-	-	-	-	*421,000*	*23,000*	*2,623,000*
Western Mojave	Linkage	391,000	37,000	12,000	14,000	12,000	195,000	29,000	691,000
	TCA	1,061,000	68,000	365,000	31,000	117,000	340,000	30,000	2,012,000
Western Mojave Total		*1,452,000*	*105,000*	*378,000*	*44,000*	*129,000*	*535,000*	*59,000*	*2,702,000*
Grand Total		**5,458,000**	**137,000**	**440,000**	**52,000**	**183,000**	**2,414,000**	**133,000**	**8,817,000**

1 Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs)

Notes: Conservation acreages reported reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to

the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Table IV.7-134
NCCP Conservation Analysis for Mohave Ground Squirrel Important Areas – Alternative 1

Mohave Ground Squirrel Important Area Type	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Key Population Center	47,000	31,000	133,000	18,000	45,000	81,000	12,000	367,000
Linkage	30,000	17,000	83,000	8,000	35,000	84,000	6,000	262,000
Expansion Area	77,000	18,000	109,000	7,000	90,000	84,000	14,000	398,000
Climate Change Extension	28,000	-	15,000	-	10,000	33,000	19,000	104,000
Total	**181,000**	**66,000**	**339,000**	**33,000**	**179,000**	**282,000**	**51,000**	**1,131,000**

[1] Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs)

Notes: Conservation acreages reported reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

IV.7.3.3.4 Impacts of General Conservation Plan: Alternative 1

IV.7.3.3.4.1 General Conservation Plan Impacts and Mitigation Measures from Renewable Energy and Transmission Development

The impacts of the GCP for Alternative 1 would be similar to those defined in Section IV.7.3.2.1 for the Plan-wide analysis, but they would occur on nonfederal lands only. On nonfederal lands under the GCP, Alternative 1 includes DFAs (approximately 971,000 acres) and transmission corridors where approximately 147,000 acres of ground disturbance related impacts and operational impacts would occur.

Impact BR-1: Siting, construction, decommissioning, and operational activities would result in loss of native vegetation.

Table IV.7-135 shows the impacts to natural communities under Alternative 1 under the GCP. An effects summary by general community is provided below in relation to the Plan-wide effects analysis provided in Section IV.7.3.2.1.1. Appendix R2 provides a detailed analysis of natural community effects by ecoregion subarea.

California forest and woodlands

No impacts to California forest and woodlands are expected under Alternative 1 within the GCP. Furthermore, the same CMAs that would be applied Plan-wide to reduce impacts to this general community and the plant and wildlife species it supports would also be applied under the GCP. This includes CMAs that address roosting covered bat species (AM-DFA-BAT-1, AM-RES-RL-BAT-1, and AM-RES-RL-BAT-2), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs would offset that effect (COMP-1 and COMP-2).

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 800 acres (1.0%) of chaparral and coastal scrubs would be impacted under Alternative 1 within the GCP Area, which is approximately 80% of the Plan-wide effects to this general community. All of the impacts are from solar, wind, and transmission development in the West Mojave and Eastern Slopes and Pinto Lucerne Valley and Eastern Slopes subareas. The same CMAs that would be applied Plan-wide to reduce impacts to this general community and the plant and wildlife species it supports would also be applied under the GCP. This includes CMAs that address breeding, nesting, or roosting species (AM-DFA-BAT-1, AM-RES-RL-BAT-1, AM-RES-RL-BAT-2, AM-DFA-PLANT-1 through AM-DFA-PLANT-3, and AM-RES-RL-PLANT-1 through AM-RES-RL-PLANT-3), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection

(AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs would offset that effect (COMP-1 and COMP-2).

Desert conifer woodlands

Overall, approximately 800 acres (0.8%) of desert conifer woodlands would be impacted under Alternative 1 under the GCP, which is approximately 80% of the Plan-wide effects. Most of the impacts are from solar development in the West Mojave and Eastern Slopes subarea. However, there would also be impacts from wind and transmission in this subarea, and impacts in the Pinto Lucerne Valley and Eastern Slopes that would come mostly from transmission, but would also include impacts from solar and transmission development. The same CMAs that would be applied Plan-wide to reduce impacts to this general community and the plant and wildlife species it supports would also be applied under the GCP. This includes CMAs that address roosting covered bat species (AM-DFA-BAT-1, AM-RES-RL-BAT-1, and AM-RES-RL-BAT-2), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs would offset that effect (COMP-1 and COMP-2).

Desert outcrop and badlands

Overall, approximately 2,000 acres (0.8%) of desert outcrop and badlands would be impacted under Alternative 1 under the GCP, which constitutes about two-fifths of the Plan-wide effects. About half of the impacts would be in the Imperial Borrego Valley subarea. The same CMAs that would be applied Plan-wide to reduce impacts to this general community and the plant and wildlife species it supports would also be applied under the GCP. This includes CMAs that address breeding, nesting, or roosting species (AM-DFA-BAT-1, AM-RES-RL-BAT-1, and AM-RES-RL-BAT-2), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs would offset that effect (COMP-1 and COMP-2).

Desert scrubs

Overall, approximately 58,000 acres (2.0%) of desert scrubs would be impacted under Alternative 1 under the GCP, which is the majority of the Plan-wide effects. Most of the impacts to desert scrubs under the GCP are in the West Mojave and Eastern Slopes subarea, but impacts occur in all subareas except for the Panamint Death Valley, Kingston and Funeral Mountains, and Piute Valley and Sacramento Mountains subareas. The same CMAs that would be applied Plan-wide to reduce impacts to this general community and the plant and wildlife species it supports would also be applied under the GCP. These include

avoidance, setbacks, and/or suitable habitat impact caps for flat-tailed horned lizard (AM-RES-RL-ICS-8 and AM-RES-RL-ICS-9), desert tortoise (AM-DFA-ICS-7, AM-DFA-ICS-9 through AM-DFA-ICS-11, and AM-RES-RL-ICS-1 through AM-RES-RL-ICS-4), Mohave ground squirrel (AM-DFA-ICS-38), bat Covered Species (AM-DFA-BAT-1, AM-RES-RL-BAT-1,and AM-RES-RL-BAT-2), and plant Covered Species (AM-DFA-PLANT-1 through AM-DFA-PLANT-3, and AM-RES-RL-PLANT-1 through AM-RES-RL-PLANT-3). Furthermore, soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) CMAs would be implemented that would help avoid and minimize these effects and compensation CMAs would offset the effect (COMP-1 and COMP-2).

Dunes

Application of the CMAs would require avoidance of dune communities to the maximum extent feasible in DFAs so there would be no impacts to dunes under the GCP. In addition, the same CMAs that would be applied Plan-wide to reduce impacts to this general community and the plant and wildlife species it supports would also be applied under the GCP. This includes the implementation of dune avoidance and minimization CMAs (AM-DFA-DUNE-1 through AM-DFA-DUNE-3, and AM-RES-RL-DUNE-1 through AM-RES-RL-DUNE-3) as well as compensation CMAs that would offset any unavoidable impacts (COMP-1 and COMP-2).

Grasslands

Overall, approximately 6,000 acres (2.9%) of grasslands would be impacted under Alternative 1 under the GCP, which is about the same as the Plan-wide effects. Most impacts are from solar development in the West Mojave and Eastern Slope subarea, but would also occur from wind and transmission development and occur in the Cadiz Valley and Chocolate Mountains, Mojave and Silurian Valley, and Pinto Lucerne Valley and Eastern Slopes subareas. In addition, the same CMAs that would be applied Plan-wide to reduce impacts to this general community and the plant and wildlife species it supports would also be applied under the GCP. This includes CMAs that address breeding, nesting, or roosting species (AM-DFA-AG-2), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs would offset that effect (COMP-1 and COMP-2).

Riparian

Application of the CMAs would require avoidance of riparian communities to the maximum extent feasible in DFAs so there would be no impacts to riparian communities under the GCP. In addition, the same CMAs that would be applied Plan-wide to reduce impacts to this general community and the plant and wildlife species it supports would also

be applied under the GCP. This includes CMAs for avoidance and minimization from riparian habitat and the Covered Species associated with riparian habitat (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9) as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

Wetlands

Overall, approximately 8,000 acres (2.4%) of wetlands would be impacted under Alternative 1 under the GCP, which is approximately 73% of the Plan-wide effects. Impacts would be mostly from renewable energy development on open water at the Salton Sea in the Imperial Borrego Valley subarea. The same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied under the GCP, including avoidance of Arid West freshwater emergent marsh and Californian warm temperate marsh/seep (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9) as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

Table IV.7-135
GCP Impact Analysis for Natural Communities – Alternative 1

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
California forest and woodland						
Californian broadleaf forest and woodland	61,000	0	0	0	0	0
Californian montane conifer forest	44,000	0	0	0	0	0
Chaparral and coastal scrub community (Cismontane scrub)						
Californian mesic chaparral	3,000	0	0	0	0	0
Californian pre-montane chaparral	1,000	0	0	0	0	0
Californian xeric chaparral	19,000	0	0	0	20	20
Central and south coastal California seral scrub	1,000	0	0	0	0	0
Central and South Coastal Californian coastal sage scrub	42,000	600	20	0	100	700

Table IV.7-135
GCP Impact Analysis for Natural Communities – Alternative 1

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Western Mojave and Western Sonoran Desert borderland chaparral	15,000	0	0	0	20	30
Desert conifer woodlands						
Great Basin Pinyon - Juniper Woodland	104,000	600	30	0	100	800
Desert outcrop and badlands						
North American warm desert bedrock cliff and outcrop	220,000	1,000	0	200	500	2,000
Desert Scrub						
Arizonan upland Sonoran desert scrub	8,000	0	0	0	0	0
Intermontane deep or well-drained soil scrub	24,000	600	20	0	70	600
Intermontane seral shrubland	68,000	1,000	30	0	90	1,000
Inter-Mountain Dry Shrubland and Grassland	152,000	300	0	0	300	600
Intermountain Mountain Big Sagebrush Shrubland and steppe	48,000	0	0	0	0	0
Lower Bajada and Fan Mojavean - Sonoran desert scrub	2,254,000	38,000	1,000	1,000	5,000	46,000
Mojave and Great Basin upper bajada and toeslope	228,000	4,000	200	0	300	5,000
Shadscale - saltbush cool semi-desert scrub	157,000	4,000	30	200	900	5,000
Southern Great Basin semi-desert grassland	70	0	0	0	0	0

Table IV.7-135
GCP Impact Analysis for Natural Communities – Alternative 1

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Dunes						
North American warm desert dunes and sand flats	34,000	0	0	0	0	0
Grassland						
California Annual and Perennial Grassland	196,214	5,312	92	-	407	5,811
California annual forb/grass vegetation	6,954	18	0	-	2	20
Riparian						
Madrean Warm Semi-Desert Wash Woodland/Scrub	96,000	0	0	0	0	0
Mojavean semi-desert wash scrub	17,000	0	0	0	0	0
Riparian	600	0	0	0	0	0
Sonoran-Coloradan semi-desert wash woodland/scrub	34,000	0	0	0	0	0
Southwestern North American riparian evergreen and deciduous woodland	6,000	0	0	0	0	0
Southwestern North American riparian/wash scrub	47,000	0	0	0	0	0
Wetland						
Arid West freshwater emergent marsh	4,000	0	0	0	0	0
Californian warm temperate marsh/seep	400	0	0	0	0	0
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	36,000	800	10	0	100	1,000
Open Water	114,000	3,000	0	1,000	900	5,000

Table IV.7-135
GCP Impact Analysis for Natural Communities – Alternative 1

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Playa	52,000	0	0	0	20	20
Southwestern North American salt basin and high marsh	112,000	1,000	20	0	100	1,000
Wetland	8,000	100	0	0	20	200
Other Land Cover – Developed and Disturbed Areas						
Agriculture	693,000	50,000	200	9,000	9,000	68,000
Developed and Disturbed Areas	399,000	200	0	40	2,000	2,000
Not Mapped	4,000	10	0	0	10	20
Rural	110,000	2,000	0	400	800	3,000
Total	**5,420,000**	**113,000**	**2,000**	**12,000**	**20,000**	**147,000**

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
[2] Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Rare natural community alliances could be impacted under Alternative 1 on nonfederal lands, including impacts to Joshua tree woodland. CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection that would help avoid and minimize these effects on rare natural communities. Additionally, AM-DFA-ONC-1 and -2 would require inventorying and preserving or transplanting cactus, yuccas, and succulents. While the compensation CMAs would offset the lost habitat acreage of these impacts, the compensation CMAs do not specifically require the replacement of or mitigation for specific rare natural community alliances. After application of the CMAs, impacts to rare natural communities from Alternative 1 would be adverse and would require mitigation.

Impact BR-2: Siting, construction, decommissioning, and operational activities would result in adverse effects to jurisdictional waters and wetlands.

Siting, construction, decommissioning, and operations of Covered Activities have the potential to result in adverse effects to federal or state jurisdictional waters and wetlands. In the Plan Area, jurisdictional waters and wetlands would likely include the riparian and wetland communities analyzed under Impact BR-1 and may also include other features including playas, seeps/springs, major rivers, and ephemeral drainage networks.

All Covered Activities would be required to comply with existing, applicable federal and state laws and regulations related to jurisdictional waters and wetlands. Additionally, all impacts to riparian communities would be avoided under Alternative 1 through application of the riparian CMAs including riparian setbacks. All impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep wetlands, except those impacts determined to be unavoidable, would be avoided under Alternative 1 through application of the wetland CMAs, including wetland setbacks (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). Approximately 7,000 acres of other wetland communities would be impacted under Alternative 1. See the analysis for the loss of native vegetation provided under BR-1 for a discussion of these potential impacts. All or a portion of the estimated wetland impacts could result in adverse effects to jurisdictional waters and wetlands without compensation. Compensation CMAs would offset any impacts determined to be unavoidable.

Additionally, playas, seeps/springs, major rivers, and ephemeral drainages are waters and wetland features that provide hydrological functions and may be determined to be jurisdictional waters and wetlands. Adverse effects to these features would have the potential to impact jurisdictional waters and wetlands.

Playa

Less than 1% (approximately 700 acres) of playa would be impacted by Covered Activities under Alternative 1 within the GCP. More than half of the impacts would be associated with solar (500 acres), with 20 acres of wind impacts, and 200 acres of transmission impacts. Ecoregion subareas of potential impacts to playas include the Cadiz Valley and Chocolate Mountains, Mojave and Silurian Valley, Owens River Valley, Pinto Lucerne Valley and Eastern Slopes, and Providence and Bullion Mountains and West Mojave and Eastern Slopes subareas.

Avoidance of impacts to wetland communities including playas would benefit Covered Species that utilize these communities. In addition, application of species-specific CMAs would help avoid and minimize impacts to species associated with playas (AM-DFA-

RIPWET-1 through AM-DFA-RIPWET-9). CMAs would also require compliance with all applicable laws and regulations pertaining to wetlands and waters, including playas (AM-PW-9 and AM-LL-2). Compensation CMAs would offset impacts to these features (COMP-1 and COMP-2).

Seep/Spring

Seeps occur within DFAs and transmission corridors and potential impacts to seep/spring have the potential to occur under Alternative 1 within the GCP in the following ecoregion subareas: Imperial Borrego Valley, Mojave and Silurian Valley, Owens River Valley, Pinto Lucerne Valley and Eastern Slopes, and West Mojave and Eastern Slopes. Impacts to seeps and springs would be adverse absent implementation of avoidance measures. Impacts to seep/spring locations and associated Covered Species and hydrological functions would be avoided through adherence to avoidance and minimization CMAs, including habitat assessments and avoidance of seeps with 0.25 mile setbacks (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). Compensation CMAs would offset impacts determined to be unavoidable (COMP-1 and COMP-2).

Major Rivers

Under Alternative 1 within the GCP, there would no direct impacts to any of the four major rivers within the Plan Area – Amargosa, Colorado, Mojave, and Owens Rivers, but there could be indirect effects associated with modification of hydrology resulting from development. Riparian CMAs would require avoidance of these features with setbacks (AM-DFA-RIPWET-1).

Ephemeral Drainages

Ephemeral drainages occur throughout the Plan Area, and some of these features could be determined to state or federal jurisdictional waters. Impacts to ephemeral drainages would likely occur from Covered Activities. Application of riparian avoidance CMAs (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9) would avoid and minimize impacts to a portion of the ephemeral drainages within DFAs. Additionally, all Covered Activities would be required to comply with existing, applicable federal and state laws and regulations related to jurisdictional waters and wetlands.

Impact BR-3: Siting, construction, decommissioning, and operational activities would result in degradation of vegetation.

Siting, construction, and operational Covered Activities would result in the degradation of vegetation through the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants.

The degree to which these factors contribute to the degradation of vegetation corresponds to the distribution of Covered Activities within the GCP that would result in dust, fire, and introduction of invasive plants or that would use dust suppressants and implement fire management. The propensity for vegetation to be at risk of degradation was determined by the overlap between natural community models and the likely distribution of Covered Activities across subareas in the GCP.

Based on the planned renewable energy capacity, the greatest amount of terrestrial operational impacts within the GCP would occur in the Imperial Borrego Valley and West Mojave and Eastern Slopes subareas, as shown in Table IV.7-136. As a result, these subareas would have the greatest potential to degrade vegetation as a result in the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants.

Table IV.7-136
GCP Terrestrial Operational Impacts – Alternative 1

Ecoregion Subarea	Solar Impact (acres)[1]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Cadiz Valley and Chocolate Mountains	17,000	900	-	3,000	20,900
Imperial Borrego Valley	43,000	-	12,000	12,000	67,000
Kingston and Funeral Mountains	-	-	-	-	-
Mojave and Silurian Valley	5,000	-	-	700	5,700
Owens River Valley	2,000	-	-	1,000	3,000
Panamint Death Valley	-	-	-	-	-
Pinto Lucerne Valley and Eastern Slopes	10,000	3,000	-	3,000	16,000
Piute Valley and Sacramento Mountains	-	-	-	-	-
Providence and Bullion Mountains	2,000	-	-	300	2,300
West Mojave and Eastern Slopes	35,000	5,000	-	1,000	41,000
Total	**113,000**	**9,000**	**12,000**	**20,000**	**154,000**

[1] Solar impacts include ground-mounted distributed generation.

Notes: Terrestrial operational impacts collectively refers to vegetation degradation impacts (BR-3) from dust, dust suppressants, fire, fire management, and invasive plants and wildlife impacts (BR-4) from creation of noise, predator avoidance behavior, lighting and glare. For the purposes of analysis, terrestrial operational impacts were quantified using the project area extent for solar and geothermal, using 25% of the project area for wind, and the right-of-way area for transmission. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field

area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation, short-term and long-term wind (excluding project area impacts), geothermal project area, and transmission impacts.

Dust and Dust Suppressants

Natural communities, and in particular natural communities containing Mojave desert shrubs, are susceptible to vegetation degradation from dust. Impacts to these natural communities would mostly occur in the West Mojave and Eastern Slope subarea, but would also occur from wind development and transmission and occur in the Pinto Lucerne Valley and Eastern Slopes subarea. Plant Covered Species, that could also experience vegetation degradation from dust, would mainly be impacted by Covered Activities in the West Mojave and Eastern Slopes subarea and to a lesser extent in the Pinto Lucerne Valley and Eastern Slopes subarea, which contain most of the impacts to plant Covered Species habitat within the GCP. Considering the distribution of Covered Activities that would cause dust as well as the sensitive natural communities and plant Covered Species the West Mojave and Eastern Slopes subarea would experience the greatest magnitude of vegetation degradation resulting from dust.

The application of dust suppressants is a common management practice, a Covered Activity under the Plan, and has been shown to effectively reduce dust. Dust-related degradation of vegetation would be further minimized within the GCP through the incorporation of avoidance and minimization CMAs. The Plan-wide avoidance and minimization CMAs would generally identify vegetation in the project area (AM-PW-1), utilize standard practices to minimize the amount of exposed soils (AM-PW-14) and reduce dust caused by soil erosion (AM-PW-10). Additionally, Alternative 1 would implement CMAs that would identify and protect or salvage specific plant species, reducing their exposure to dust. Setbacks and suitable habitat impact caps would also be implemented for plant Covered Species in DFAs and in the reserve design envelope (AM-DFA-PLANT-through AM-DFA-PLANT-3).

Riparian and wetland natural communities would be susceptible to the adverse effects of dust suppressants including chemical and physical changes, altered hydrological function, and increased pollutant loads in surface water. The Imperial Borrego Valley subarea would experience most of the impacts to riparian and wetland natural communities in the GCP, which corresponds to the potential greatest magnitude of vegetation degradation from

adverse dust suppressant effects. Plant Covered Species, which would also be affected by the use of dust suppressants would mostly be impacted by Covered Activities in the West Mojave and Eastern Slopes subarea and to a lesser extent in the Pinto Lucerne Valley and Eastern Slopes subarea.

Avoidance and minimization CMAs implemented as part of Alternative 1, including AM-PW-9 and AM-PW-10, would utilize standard practices to reduce erosion and runoff of dust suppressant into sensitive vegetation. Setbacks and avoidance requirements for all riparian natural communities and some wetland natural communities that would be implemented as part of the CMAs would minimize potential adverse effects of dust suppressants on these communities (AM-DFA-RIPWET-1).

Fire and Fire Management

Anthropogenic ignitions of fires that could result from operational and maintenance activities associated with renewable energy facilities could destroy the natural communities found in the Plan Area. Due to their slower speed of recovery, desert scrub natural communities are more susceptible to natural community conversion from fires. Within the GCP most of the impacts to desert scrubs within the GCP would primarily occur within the West Mojave and Eastern Slopes subarea and to a lesser extent in the Pinto Lucerne Valley and Eastern Slopes subarea.

Under Alternative 1, construction and maintenance of fire breaks and other fire management techniques would impact California forest and woodlands, chaparral natural communities, and grassland natural communities within the GCP. In combination these impacts to woodlands, chaparral, and grasslands, which correspond to the amount of potential vegetation degradation resulting from vegetation removal during fire management, would predominantly occur in the West Mojave and Eastern Slopes subarea and to a lesser extent in the Pinto Lucerne Valley and Eastern Slopes as well as the Cadiz Valley and Chocolate Mountains subareas.

Avoidance and minimization CMAs would be implemented to minimize the potential adverse effects of fire and fire management, including AM-PW-12 that would require projects to minimize the amount of vegetation clearing and fuel modification, under Alternative 1.

Invasive Plants

Invasive plants can result in vegetation degradation by increasing the fuel load and the frequency of fires in plant communities as well hindering the growth or establishment of other plant species. Overall, the natural communities and plant Covered Species in the GCP are generally at risk of adverse effects from the introduction of invasive plants. The most

vegetation degradation caused by the introduction of invasive plants would occur in the West Mojave and Eastern Slopes and Pinto Lucerne Valley and Eastern slopes subareas. Similarly, plant Covered Species in the GCP would also experience potential vegetation degradation as a result of Covered Activities with most of the impacts occurring in the Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas.

Avoidance and minimization CMAs would be implemented to reduce vegetation degradation from invasive plants under Alternative 1, including AM-PW-7 that would ensure the timely restoration of temporarily disturbed areas that could otherwise promote invasive plants. Additional CMAs would use standard practices to control weeds and invasive plants (AM-PW-11) and require the responsible use of herbicides to minimize potential vegetation degradation (AM-PW-15) for all Covered Activities.

Impact BR-4: Siting, construction, decommissioning, and operational activities would result in loss of listed and sensitive plants; disturbance, injury, and mortality of listed and sensitive wildlife; and habitat for listed and sensitive plants and wildlife.

Impact BR-4 described at the Plan-wide level provides an impact analysis for Covered Species habitat by ecoregion subarea, specific Covered Species impact analyses, an indirect and terrestrial operational impact analysis for Covered Species, and a non-Covered Species impact analysis. The following provides an impact analysis for Covered Species on nonfederal GCP lands. Most of the impacts to plant and wildlife species and their habitat under Alternative 1 would occur in the Imperial Borrego Valley and West Mojave and Eastern Slopes subareas.

Covered Species Habitat Impact Analysis by Ecoregion Subarea

West Mojave and Eastern Slopes Ecoregion Subarea

Renewable energy development in the West Mojave and Eastern Slopes subarea would mostly be from solar development, but would also include impacts from wind and transmission development. Typical impacts from these Covered Activities on plant and wildlife species and their habitat is described in Section IV.7.2. This subarea provides suitable habitat for amphibians and reptiles that would be impacted, including Agassiz's desert tortoise. The siting of the DFAs under the GCP largely avoid habitat for Mojave fringe-toed lizard, and Tehachapi slender salamander, and CMAs require avoidance of and setbacks from dune habitat (AM-DFA-DUNE-1 through AM-DFA-DUNE-3) would further avoid and minimize the impacts on these species. Compensation CMAs would offset habitat loss for these species.

There is suitable habitat for several bird Covered Species in the West Mojave and Eastern Slopes subarea, including Bendire's thrasher, burrowing owl, California condor, golden

eagle, least Bell's vireo, mountain plover, southwestern willow flycatcher, Swainson's hawk, and tricolored blackbird that would be impacted. CMAs require avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further avoid and minimize the impacts on least Bell's vireo, southwestern willow flycatcher, and tricolored blackbird, to less than the acreage reported in Table IV.7-137. Additionally, the CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs (AM-DFA-AG-2). Compensation CMAs would offset habitat loss for these species.

Suitable habitat for bighorn sheep, desert kit fox, Mohave ground squirrel, pallid bat, and Townsend's big-eared bat would be impacted in this subarea. The siting of the DFAs under the GCP largely avoid habitat for bighorn sheep. The CMAs require avoidance of and setbacks from riparian and wetland habitat (AM-DFA-RIPWET-1) that would further reduce the impacts on these habitats used by Mohave ground squirrel, pallid bat, and Townsend's big-eared bat to less than the acreage reported in Table IV.7-137. Compensation CMAs would offset habitat loss for these species.

Suitable habitat for the following plant species would be impacted in the West Mojave and Eastern Slopes subarea: alkali mariposa-lily, Bakersfield cactus, Barstow woolly sunflower, desert cymopterus, Mojave monkeyflower, and Mojave tarplant. Although modeled suitable habitat for these species may be impacted by Covered Activities in this subarea, the CMAs require surveys for plant Covered Species for all Covered Activities, and the CMAs requiring avoidance of and setbacks from occupied habitat (AM-DFA-PLANT-1 through AM-DFA-PLANT-3) would further reduce the impacts on these species to less than the acreage reported in Table IV.7-137. Compensation CMAs would offset habitat loss for these species.

Cadiz Valley and Chocolate Mountains Ecoregion Subarea

Renewable energy development within the Cadiz Valley and Chocolate Mountains subarea would be primarily from solar energy development, but would also include impacts from wind and transmission. The Cadiz Valley and Chocolate Mountains subarea provides suitable habitat for amphibians and reptiles that would be impacted, including Agassiz's desert tortoise and Mojave fringe-toed lizard. The siting of the DFAs under the GCP largely avoid habitat for Mojave fringe-toed lizard, and CMAs require avoidance of and setbacks from dune habitat (AM-DFA-DUNE-1 through AM-DFA-DUNE-3) would further avoid and minimize the impacts on this species to less than the acreage reported in Table IV.7-137. Compensation CMAs would offset habitat loss for these species.

Impacts would occur to the following covered bird species in this subarea: Bendire's thrasher, burrowing owl, California black rail, Gila woodpecker, golden eagle, greater sandhill crane, mountain plover, and western yellow-billed cuckoo. CMAs requiring avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1)

would further avoid and minimize the impacts on California black rail, and western yellow-billed cuckoo to less than the acreage reported in Table IV.7-137. Compensation CMAs would offset habitat loss for these species. Suitable habitat for mammal Covered Species occurs in the Cadiz Valley and Chocolate Mountains subarea that would be impacted, including bighorn sheep, California leaf-nosed bat, pallid bat, and Townsend's big-eared bat. Burro deer and desert kit fox (Planning Species) would also be impacted. The siting of the DFAs under the Alternative 1 largely avoid habitat for bighorn sheep. The CMAs require avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further reduce the impacts on these habitats used by California leaf-nosed bat, pallid bat, and Townsend's big-eared bat to less than the acreage reported in Table IV.7-137. Compensation CMAs would offset habitat loss for these species. No impacts to suitable habitat for covered plant species are expected to occur in the Cadiz Valley and Chocolate Mountains subarea under the GCP. In addition, the CMAs require surveys for plant Covered Species for all Covered Activities, and the CMAs requiring avoidance of and setbacks from occupied habitat (AM-DFA-PLANT-1 through AM-DFA-PLANT-3) would further reduce the impacts on this species to less than the acreage reported in Table IV.7-137. Compensation CMAs would offset habitat loss for these species.

Imperial Borrego Valley Ecoregion Subarea

Renewable energy development within the Imperial Borrego Valley subarea would be primarily from solar energy development, but would also include impacts from geothermal, and transmission development. The Imperial Borrego Valley subarea provides suitable habitat for flat-tailed horned lizard that would be impacted under Alternative 1. The siting of the DFAs under the GCP largely avoid habitat for flat-tailed horned lizard, and CMAs require avoidance of and setbacks from dune habitat (AM-DFA-DUNE-1 through AM-DFA-DUNE-3) would further avoid and minimize the impacts on this species to less than the acreage reported in Table IV.7-137.

Impacts would occur to suitable habitat for the following covered bird species in this subarea: Bendire's thrasher, burrowing owl, California black rail, Gila woodpecker, golden eagle, greater sandhill crane, least Bell's vireo, mountain plover, southwestern willow flycatcher, Swainson's hawk, tricolored blackbird, and Yuma clapper rail. CMAs require avoidance of and setbacks from riparian habitat and wetland (AM-DFA-RIPWET-1) habitat would further avoid and minimize the impacts on southwestern willow flycatcher, tricolored blackbird, least Bell's vireo, California black rail, and Yuma clapper rail to less than the acreage reported in Table IV.7-137. Additionally, the CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs (AM-DFA-AG-2).

Impacts to suitable habitat for desert pupfish, the only fish species with suitable habitat in this subarea, would total approximately 300 acres. The avoidance and setback provisions

for managed wetlands and agricultural drains (AM-DFA-RIPWET-1) would conserve wetland and riparian features within the agricultural matrix and provide conservation benefits to desert pupfish.

Only minimal impacts (about 20 acres) would occur to bighorn sheep mountain habitat in this subarea. Impacts to suitable habitat for other covered mammals species would occur for California leaf-nosed bat, pallid bat, and Townsend's big-eared bat, as well as desert kit fox (Planning Species). The siting of the DFAs under the GCP largely avoid habitat for bighorn sheep. The CMAs require avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further reduce the impacts on these habitats used by California leaf-nosed bat, pallid bat, and Townsend's big-eared bat to less than the acreage reported in Table IV.7-137.

Table IV.7-137
GCP Impact Analysis for Covered Species Habitat – Alternative 1

Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Amphibian/Reptile						
Agassiz's desert tortoise	2,248,000	33,000	1,000	-	3,000	38,000
Flat-tailed horned lizard	310,000	7,000	-	2,000	3,000	12,000
Mojave fringe-toed lizard	168,000	6,000	30	-	1,000	7,000
Tehachapi slender salamander	41,000	-	-	-	-	-
Bird						
Bendire's thrasher	405,000	6,000	200	700	1,000	8,000
Burrowing owl	3,244,000	96,000	2,000	10,000	16,000	124,000
California black rail	127,000	3,000	-	700	900	4,000
California condor	997,000	12,000	300	-	600	13,000
Gila woodpecker	56,000	500	-	100	300	900
Golden eagle–foraging	1,498,000	8,000	200	40	2,000	10,000
Golden eagle–nesting	676,000	500	20	-	300	800

Table IV.7-137
GCP Impact Analysis for Covered Species Habitat – Alternative 1

Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Greater sandhill crane	601,000	46,000	200	9,000	8,000	63,000
Least Bell's vireo	104,000	200	10	20	80	300
Mountain plover	811,000	52,000	300	9,000	9,000	70,000
Southwestern willow flycatcher	258,000	5,000	30	1,000	2,000	8,000
Swainson's hawk	1,339,000	39,000	500	5,000	6,000	50,000
Tricolored blackbird	257,000	7,000	60	30	200	8,000
Western yellow-billed cuckoo	111,000	500	-	-	40	500
Yuma clapper rail	31,000	50	-	10	10	70
Fish						
Desert pupfish	7,000	200	-	60	70	300
Mohave tui chub	100	-	-	-	-	-
Owens pupfish	13,000	90	-	-	20	100
Owens tui chub	13,000	90	-	-	20	100
Mammal						
Bighorn sheep – inter-mountain habitat	465,000	2,000	40	-	500	2,000
Bighorn sheep – mountain habitat	807,000	3,000	200	-	1,000	4,000
California leaf-nosed bat	979,000	9,000	30	600	3,000	13,000
Mohave ground squirrel	1,319,000	24,000	900	-	2,000	27,000
Pallid bat	3,775,000	51,000	2,000	1,000	8,000	63,000
Townsend's big-eared bat	3,510,000	48,000	1,000	2,000	8,000	60,000
Plant						
Alkali mariposa-lily	117,000	2,000	40	-	80	3,000
Bakersfield cactus	200,000	700	20	-	40	800

Table IV.7-137
GCP Impact Analysis for Covered Species Habitat – Alternative 1

Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Barstow woolly sunflower	82,000	700	30	-	10	700
Desert cymopterus	137,000	500	-	-	-	500
Little San Bernardino Mountains linanthus	130,000	800	50	-	100	1,000
Mojave monkeyflower	41,000	100	10	-	40	200
Mojave tarplant	129,000	40	-	-	60	100
Owens Valley checkerbloom	92,000	700	-	-	300	1,000
Parish's daisy	72,000	1,000	60	-	300	1,000
Triple-ribbed milk-vetch	3,000	-	-	-	-	-

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
[2] Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Specific Covered Species Impact Analyses

For Agassiz's desert tortoise, desert tortoise important areas were identified that include tortoise conservation areas (TCAs), desert tortoise linkages, and desert tortoise high priority habitat (see desert tortoise BGOs in Appendix C). Table IV.7-138 provides an impact analysis for these desert tortoise important areas in the GCP area, organized by desert tortoise Recovery Units: Colorado Desert, Eastern Mojave, and Western Mojave. Within the Colorado Desert Recovery Unit, approximately 700 acres of TCAs, linkage habitat, and high priority habitat would be impacted under Alternative 1. Within the Eastern Mojave Recovery Unit, no habitat would be impacted under Alternative 1. Within the Western Mojave Recovery Unit, approximately 6,000 acres of TCAs and linkage habitat

would be impacted under Alternative 1. CMAs would require avoidance of TCAs, except for impacts associated with transmission or impacts in disturbed portions of TCAs. Additionally, the CMAs would prohibit impacts that affect the viability of desert tortoise linkages (AM-DFA-ICS-1 and AM-DFA-ICS-3 through 15). Compensation CMAs would be required for impacts to desert tortoise, including desert tortoise important areas.

Table IV.7-138
GCP Impact Analysis for Desert Tortoise Important Areas – Alternative 1

Recovery Unit	Desert Tortoise Important Areas	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Colorado Desert	High Priority Habitat	31,000	-	-	-	-	-
	Linkage	63,000	10	-	-	10	10
	TCA	269,000	-	-	-	700	700
Colorado Desert Total		*363,000*	*10*	-	-	*700*	*700*
Eastern Mojave	Linkage	56,000	-	-	-	-	-
	TCA	66,000	-	-	-	-	-
Eastern Mojave Total		*122,000*	-	-	-	-	-
Western Mojave	Linkage	407,000	5,000	300	-	900	6,000
	TCA	392,000	70	-	-	300	400
Western Mojave Total		*798,000*	*5,000*	*300*	-	*1,000*	*6,000*
Total		**1,283,000**	**5,000**	**300**	**-**	**2,000**	**7,000**

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Ares.
[2] Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For golden eagle, a territory-based analysis was conducted (see methods and results in the Chapter IV.7 portion of Appendix R2). Using the golden eagle nest database, golden eagle territories were identified and individually buffered by 1 mile (representing breeding areas around known nests) and 4 miles (representing use areas around known nests). A total of 101 territories occur wholly or partially within the GCP area in available lands. Under Alternative 1, 21 territories have DFAs or transmission corridors within 1 mile of a nest. Implementation of the CMAs for golden eagles (AM-DFA-ICS-2) would prohibit siting or

construction of Covered Activities within 1 mile of an active golden eagle nest; therefore, impacts within 1 mile of these golden eagle territories would be avoided. Under Alternative 1, 53 territories have DFAs or transmission corridors within 4 miles of nest, and the use area of these territories could be impacted through harassment and reduced foraging opportunities by Covered Activities depending of the siting of specific projects. The CMAs for golden eagles (Section II.3.1.2.5) and the approach to golden eagles (see Appendix H) describes how the impact to golden eagles would be avoided, minimized, and compensated. Based on the 2013 analysis, no more than 15 golden eagles per year in 2014 would be allowed to be taken within the Plan Area, which would be reassessed annually.

For bighorn sheep, bighorn sheep mountain habitat and intermountain (linkage) habitat have been identified in the Plan Area. Under Alternative 1 on nonfederal land, approximately 4,000 acres of mountain habitat and 2,000 acres of intermountain habitat would be impacted. Alternative 1 identified DFAs that largely avoid impacts to bighorn sheep mountain and intermountain habitat, and avoidance, minimization, and compensation CMAs have been developed to offset the loss of habitat for bighorn sheep.

For Mohave ground squirrel, Mohave ground squirrel important areas were identified that include key population centers, linkages, expansion areas, and climate change extension areas (see Mohave ground squirrel BGOs in Appendix C). Table IV.7-139 provides an impact analysis for these Mohave ground squirrel important areas in the GCP area. Approximately 400 acres of key population centers would be impacted. A total of approximately 2,000 acres of impact would occur in climate change extension areas. A total of 400 acres of impact to linkage and 500 acres of impact to expansion areas would occur under Alternative 1. The CMAs for Mohave ground squirrel require protocol surveys in population centers and linkages, as well as provide other measures to offset the loss of habitat for Mohave ground squirrel. Additionally, the CMAs would prohibit impacts that affect the viability of linkages. Compensation CMAs would be required for impacts to Mohave ground squirrel, including Mohave ground squirrel important areas.

Table IV.7-139
GCP Impact Analysis for Mohave Ground Squirrel Important Areas – Alternative 1

Mohave Ground Squirrel Important Area Type	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Key Population Center	193,000	20	-	-	300	400
Linkage	103,000	300	-	-	100	400
Expansion Area	258,000	400	10	-	70	500

Table IV.7-139
GCP Impact Analysis for Mohave Ground Squirrel Important Areas – Alternative 1

Mohave Ground Squirrel Important Area Type	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Climate Change Extension	131,000	2,000	-	-	500	2,000
Total	**684,000**	**2,000**	**10**	**-**	**1,000**	**3,000**

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
[2] Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Within the Plan Area, critical habitat has been designated by the USFWS for the following Covered Species: desert tortoise, southwestern willow flycatcher, desert pupfish, and Parish's daisy. For desert tortoise, approximately 1,000 acres of impact designated critical habitat would result from the development of Covered Activities on nonfederal lands under Alternative 1 located in the Chuckwalla, Fremont-Kramer, Ord-Rodman, and Superior-Cronese critical habitat units. Under Alternative 1, no impacts to critical habitat designated for southwestern willow flycatcher, desert pupfish, or Parish's daisy would occur from the development of Covered Activities on nonfederal lands.

Indirect and Terrestrial Operational Impact Analysis

Siting, construction, and operational Covered Activities could result in the potential disturbance, injury, and mortality of listed and sensitive wildlife from noise, predator avoidance behavior, as well as light and glare. The degree to which these factors contribute to the disturbance of sensitive wildlife corresponds to the distribution of Covered Activities within the GCP that would result in noise, predator avoidance behavior, or light and glare.

Based on the planned renewable energy capacity in the GCP, most of the terrestrial operational impacts would occur in the West Mojave and Eastern Slopes subarea, as shown in Table IV.7-136. As a result, these subareas would have the greatest potential to disturbance of sensitive wildlife from noise, predator avoidance behavior, as well as light and glare.

Noise

Noise can cause physical damage to wildlife as well as behavioral changes in habitat use, activity patterns, reproduction, and foraging. Nesting birds are expected to be particularly sensitive to noise effects. The largest amount of impacts to bird Covered Species habitat in the GCP would be located in the Imperial Borrego Valley and West Mojave and Eastern Slopes and subareas. Smaller mammals, such as the Mohave ground squirrel, and reptiles, such the Mojave fringe-toed lizard and flat-tailed horned lizard, could experience increased predation from noise hindering their ability to detect predators. The combined impacts in the GCP to the habitat for these Covered Species would mostly occur in the Imperial Borrego Valley subarea , and to a lesser extent in the Pinto Lucerne and Eastern Slopes subarea.

Implementation of avoidance and minimization CMAs under Alternative 1 would reduce the disturbance and injury of wildlife from noise-related effects. The CMA AM-PW-13 would minimize noise generated from Covered Activities using standard practices while other CMAs that would avoid and setback Covered Activities from noise-sensitive wildlife including seasonal setbacks for nesting birds; setbacks from riparian and wetland habitat benefitting bids, amphibians, and small mammals; and avoidance of Mohave ground squirrel's during operations (AM-DFA-RIPWET-1, AM-DFA-RIPWET-5, and AM-DFA-ICS-36).

Predator Avoidance Behavior

Section IV.7.2.1 describes the effects of predator avoidance behavior including wildlife experiencing behavioral changes due to human activities during siting, construction, and operations. These adverse effects resulting from predator avoidance behavior would generally be similar across renewable energy technology types. As such, the severity and location of the effects resulting from predator avoidance behavior would correspond to the amount and distribution of Covered Activities represented by the DFAs within the GCP, as previously described.

Although different wildlife species may have varying sensitivities to predator avoidance behavior and may experiences different magnitudes of responses to Covered Activities, Covered Activities are expected to generally result in predator avoidance and other behavioral changes in most wildlife species that are spread throughout the GCP. Therefore, the most disturbance of wildlife from predator avoidance behavior would occur in the Imperial Borrego Valley and West Mojave and Eastern Slopes subareas, where most of the terrestrial operational impacts within the GCP are anticipated. The adverse effects of predator avoidance behavior would also be prevalent in the Cadiz Valley and Chocolate Mountains subarea to a lesser extent.

Avoidance and minimization CMAs for siting Covered Activities away from sensitive wildlife habitat would be implemented for riparian and wetland habitat, wildlife species that inhabit agricultural lands, and for particular species such as the Mohave ground squirrel (AM-DFA-RIPWET-1, AM-DFA-RIPWET-5, AM-DFA-AG-2, and AM-DFA-ICS-36). Under Alternative 1, additional CMAs would inform workers of actions that could potentially affect wildlife behavior and restrict activities that could disturb wildlife and their access to water and foraging habitat (AM-PW-5, AM-PW-13, and AM-RES-RL-DUNE-2). Seasonal restrictions would also be implemented for recreational activities that might affect Bighorn sheep in the reserve design envelope (AM-RES-BLM-ICS-11). The potential disturbance of wildlife from predator avoidance behavior caused by siting, construction, and operational Covered Activities in the GCP would be minimized by these measures.

Light and Glare

Exposure of wildlife to light and glare can alter wildlife behavior including foraging, migration, and breeding. Solar projects are expected to have greater effects on wildlife compared to other renewable energy technologies because they would produce increased levels of glare due to the large amount of reflective panel or heliostat surfaces. Potential adverse effects associated with light and glare from solar projects, including solar flux and bird collisions from the lake effect are analyzed in BR-9. Most of the terrestrial operational impacts in the GCP resulting from development of all technology types of renewable energy would occur in the West Mojave and Eastern Slopes and Imperial Borrego Valley subareas. Similarly, the West Mojave and Eastern Slopes and Imperial Borrego Valley subareas would experience most of the terrestrial operational impacts from solar projects in the GCP. Therefore, these subareas would have the greatest potential to disturbance of sensitive wildlife from noise, predator avoidance behavior, as well as light and glare.

Bats and other diurnal predators may exploit night lighting that increases prey detectability, but would also be attracted to areas of greater development that increase potential hazards such as collision. Impacts to habitat for bats would as a result of Covered Activities in the GCP would mainly be located in the West Mojave and Eastern Slopes, Pinto Lucerne Valley and Eastern Slopes, and Imperial Borrego Valley subareas. Migratory birds that fly during the night may be affected by aviation safety lighting. For bird Covered Species the Imperial Borrego Valley and West Mojave and Eastern Slopes are the subareas primarily affected, containing most of the impacts to bird Covered Species habitat in the GCP. As such, wildlife disturbance is anticipated to occur primarily in the West Mojave and Eastern Slopes subarea and to a lesser extent in the Imperial Borrego Valley as well as Pinto Lucerne Valley and Eastern Slopes the subareas.

Alternative 1 would implement avoidance and minimization CMAs within the GCP specifically intended to minimize effects of lighting and glare including AM-PW-14, which would implement standard practices for shielding and reducing the use of lights, as well as AM-DFA-RIPWET-4, which specifically restricts lighting within one mile of riparian or wetland vegetation. Other CMAs applicable in the GCP would implement setbacks for riparian and wetland habitat, wildlife species that inhabit agricultural lands, and for smaller mammals, which would minimize their exposure to light and glare from Covered Activities (AM-DFA-RIPWET-1, AM-DFA-RIPWET-5, and AM-DFA-AG-2).

Non-Covered Species

Potential impacts to Non-Covered Species on GCP Land were analyzed as described in Section IV.7.3.2.1. Table IV.7-140 provides an estimation of the impacts to natural communities associated with Non-Covered Species. While estimation of impacts to natural communities likely overestimates the potential impacts to Non-Covered Species habitats, it provides a general range of level of impact.

Impacts to the dune community, riparian communities, arid west freshwater emergent marsh, and Californian warm temperate marsh/seep would be avoided through implementation of CMAs, so impacts to potential habitat for each of these species is likely greater than would actually occur. The vast majority of the impacts are expected to occur from solar energy development. For some species, impacts would be minimized through avoidance of the specific natural communities required for those species, e.g. dune-, spring-, or cave-restricted invertebrates, or riparian-obligate bird or amphibian species. The total impact to potential habitat across all technology types is less than 1%, with the exception of the desert scrub/chaparral communities at approximately 2%, grassland community at approximately 2.7%, and within the agriculture/rural land cover areas at approximately 9%.

As additional analysis, Table IV.7-50 provides a cross-reference of natural communities shared between primary Covered and Non-Covered Species. There are a number of species-specific CMA's for Covered Species and natural communities that would be expected to also minimize and avoid impacts to the Non-Covered Species that may co-occur, e.g., the Non-Covered yellow-breasted chat often occurs within the same riparian habitat as the covered southwestern willow flycatcher, therefore, conservation measures implemented for southwestern willow flycatcher would often benefit the yellow-breasted chat. Although the modeled habitat for the Covered Species does not always directly overlap the range of Non-Covered Species requiring similar habitat, this method provides a general additional guide for determining impacts and accounting for conservation measures.

Under the Alternative 1, impacts to approximately 10 acres of Lane Mountain milk-vetch critical habitat on GCP lands would have the potential to occur from transmission. This

calculation of impacts from transmission is derived from the transmission corridors overlapped with designated critical habitat, thus resulting is an overestimation of actual ground disturbance.

The results of impacts on Non-Covered Species from the creation of noise, predator avoidance behavior, and light and glare would be similar to those described for the Covered Species.

Table IV.7-140
GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 1

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
California forest and woodland/ Desert conifer woodlands	Coast horned lizard, grey vireo, loggerhead shrike, yellow warbler, American badger, bighorn sheep, fringed myotis, hoary bat, long-eared myotis, pocketed free-tailed bat, spotted bat, Tehachapi pocket mouse, western mastiff bat, western small-footed myotis, Amargosa beardtongue, Charlotte's phacelia, creamy blazing star, Cushenbury buckwheat, Cushenbury milk-vetch, Cushenbury oxytheca, Kern buckwheat, Piute Mountains jewel-flower, purple-nerve cymopterus, San Bernardino Mountains dudleya, short-joint beavertail cactus, Spanish needle onion, Tracy's eriastrum, Cushenbury buckwheat	148,000	600	30	0	100	730	0.5%
Desert Scrub/ Chaparral Communities	Arroyo toad, banded gila monster, Coast horned lizard, Colorado Desert fringe-toed lizard, Couch's spadefoot, rosy boa, bald eagle, bank swallow, Crissal thrasher, Ferruginous hawk, gilded flicker, grey vireo, Le Conte's thrasher, loggerhead shrike, long-eared owl,	3,020,000	49,000	1,000	1,000	7,000	58,000	2.0%

Table IV.7-140
GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 1

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	Lucy's warbler, northern harrier, yellow warbler, American badger, Arizona myotis, big free-tailed bat, bighorn sheep, cave myotis, fringed myotis, hoary bat, long-eared myotis, Palm Springs pocket mouse, pocketed free-tailed bat, spotted bat, Tehachapi pocket mouse, western mastiff bat, western small-footed myotis, western yellow bat, yellow-eared pocket mouse, Yuma myotis, Algodones Dunes sunflower, Ash Meadows gum plant, Amargosa beardtongue, bare- stem larkspur, Charlotte's phacelia, Cima milk-vetch, Coachella Valley milk-vetch, creamy blazing star, Cushenbury buckwheat, Cushenbury milk-vetch, Cushenbury oxytheca, desert pincushion, Emory's crucifixion-thorn, flat-seeded spurge, forked buckwheat, Harwood's eriastrum, Harwood's milkvetch, Inyo County star-tulip, Kelso Creek monkeyflower, Kern buckwheat, Las Animas colubrina, Lane							

Table IV.7-140
GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 1

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	Mountain Milk-Vetch, Mojave Desert plum, Mojave milkweed, Munz's Cholla, nine-awned pappus grass, Orcutt's woody aster, Orocopia sage, Parish's club cholla, Pierson's milk-vetch, pink fairy-duster, Piute Mountains jewel-flower, purple-nerve cymopterus, Red Rock poppy, Red Rock tarplant, Robinson's monardella, Rusby's desert-mallow, sand food, Sodaville milk-vetch, short-joint beavertail cactus, Spanish needle onion, Thorne's buckwheat, Tracy's eriastrum, Utah beardtongue, white bear poppy, White-margined beardstongue, Wiggin's croton, Flat-seeded spurge, Parish's phacelia, Parish's alkali grass							
Dunes[3]/ Desert Outcrop and Badlands	Banded gila monster, barefoot gecko, Coast horned lizard, Colorado Desert fringe-toed lizard, Couch's spadefoot, rosy boa, bald eagle, bank swallow, Le Conte's thrasher, loggerhead shrike, long-eared owl, northern harrier, Amargosa vole, big free-tailed bat,	254,000	1,000	0	200	500	1,700	0.7%

Table IV.7-140
GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 1

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	bighorn sheep, cave myotis, bat, spotted bat, western mastiff bat, Yuma myotis, Algodones Dunes sunflower, Ash Meadows gum plant, Amargosa beardtongue, Amargosa niterwort, Charlotte's phacelia, Cima milk-vetch, Coachella Valley milk-vetch, creamy blazing star, desert pincushion, Emory's crucifixion-thorn, flat-seeded spurge, forked buckwheat, Harwood's eriastrum, Harwood's milkvetch, Inyo County star-tulip, Las Animas colubrina, Mojave Desert plum, Mojave milkweed, nine-awned pappus grass, Orcutt's woody aster, Orocopia sage, Palmer's jackass clover, Parish's club cholla, Pierson's milk-vetch, pink fairy-duster, purple-nerve cymopterus, Red Rock poppy, Red Rock tarplant, Robinson's monardella, Rusby's desert-mallow, sand food, Spanish needle onion, Thorne's buckwheat, Utah beardtongue, white bear poppy, Wiggin's croton, Palmer's jackass							

Table IV.7-140
GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 1

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	clover, white-margined beardtongue, flat-seeded spurge							
Grassland	Coast horned lizard, American peregrine falcon, bank swallow, Ferruginous hawk, long-eared owl, northern harrier, white-tailed kite, Amargosa vole, American badger, spotted bat, Cushenbury milk-vetch, Cushenbury oxytheca, short-joint beavertail cactus	203,000	5,000	90	0	400	5,490	2.7%
Riparian/ Wetlands	Arroyo toad, California red-legged frog, Coast horned lizard, Couch's spadefoot, Western pond turtle, American peregrine falcon, Arizona Bell's vireo, bald eagle, bank swallow, Crissal thrasher, gilded flicker, elf owl, Inyo California towhee, loggerhead shrike, long-eared owl, Lucy's warbler, northern harrier, redhead, vermillion flycatcher, white-tailed kite, yellow-breasted chat, yellow-headed blackbird, yellow warbler, Amargosa vole, Mojave River vole, Arizona myotis, cave myotis, fringed myotis, hoary bat, long-eared myotispocketed free-tailed	382,000	2,000	30	0	200	2,230	0.6%

Table IV.7-140
GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 1

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	bat, spotted bat, western mastiff bat, western yellow bat, Yuma myotis, Ash Meadows gum plant, Inyo County star-tulip, Parish's alkali grass, Parish's phacelia, Amargosa pupfish, Amargosa speckled dace, Amargosa spring snails							
Agriculture/ Rural Land Cover	American peregrine falcon, Bank swallow, loggerhead shrike, long-eared owl, northern harrier, redhead, yellow-headed blackbird, yellow warbler, Arizona myotis, hoary bat, Tehachapi pocket mouse, western mastiff bat, western yellow bat	803,000	52,000	200	9,000	10,000	71,200	8.9%

1 Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

2 Solar impacts include ground-mounted distributed generation.

3 Impacts to the dune community, riparian communities, arid west freshwater emergent marsh, and Californian warm temperate marsh/seep would be avoided through implementation of CMAs. Only impacts determined to be unavoidable would occur in these natural communities.

4 This amount assumes the loss of conservation value for all land fragmented by the well fields.

Notes: The natural community classification system is described in Chapter III.7 and follows CDFG 2012. Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Impact BR-5: Siting, construction, decommissioning, and operational activities could result in loss of nesting birds (violation of the federal Migratory Bird Treaty Act and California Fish and Game Code Sections 3503, 3503.5, 3511, and 3513).

Siting, construction, decommissioning, and operations of renewable energy and transmission projects would result in the removal of vegetation and other nesting habitat and cause increased human presence and noise that has the potential to cause the loss of nesting birds, which would be a violation of the federal Migratory Bird Treaty Act. The potential loss of nesting birds resulting from these activities would be adverse without application of CMAs. Avoidance and minimization CMAs (AM-PW-4, 13, 14; AM-DFA-RIPWET-1, 3, 5; AM-DFA-AG-1 through 6; AM-DFA-ICS CMAs for bird species) include the season restrictions, survey requirements, and setbacks necessary to avoid and minimize the loss of nesting birds.

Impact BR-6: Siting, construction, decommissioning, and operational activities would adversely affect habitat linkages and wildlife movement corridors, the movement of fish, and native wildlife nursery sites.

Species-specific habitat linkages and wildlife movement areas are a component of analysis conducted under Impact BR-4 above. Suitable habitat for each species includes areas of habitat linkages and wildlife movement. Analysis under BR-4 specifically incorporates habitat linkage information for desert tortoise, Mohave ground squirrel, and desert bighorn sheep. In addition to the species-specific analysis of impacts to suitable habitat supporting habitat linkages and wildlife movement for species, landscape level information on habitat linkages (i.e., Desert Linkage Network) and migratory bird movement are analyzed below.

Desert Linkage Network

Table IV.7-141 shows the impact analysis for the desert linkage network for Alternative 1 for the GCP. Overall, over 12,000 acres of desert linkage network could be adversely impacted in DFAs and transmission corridors in mainly five different subareas. In the Cadiz Valley and Chocolate Mountains subarea, DFAs are located in the portion of the desert linkage network that connects the Colorado River to the northern part of the McCoy Mountains. There are also DFAs in the Chuckwalla Valley in the linkage that connects the Palo Verde Mountains to the McCoy Mountains. In the Mojave and Silurian Valley, there are DFAs in the Mojave Valley in a linkage that connects the area around Barstow to the Calico Mountains and east along and south of the Mojave River. In the Owens River Valley, there are DFAs in the desert linkage network that connects the Haiwee Reservoir to Indian Wells. In the Pinto Lucerne Valley and Eastern Slopes subarea, there are DFAs in the desert linkage network that connects the Grapevine Canyon Recreation Lands to the Granite Mountains and the Lucerne Valley. There are also DFAs in the linkage that connects Black Mountain to the Mojave River. In the West Mojave and Eastern Slopes subarea, there are

DFAs in the linkage that connects the area around Baldy Mesa along the southern edge of the Plan Area to Helendale. There are also DFAs in the linkages that connect Fremont Valley and Soledad Mountain to the Tehachapi Mountains.

To avoid and minimize impacts to the desert linkage network beyond what is presented in Table IV.7-141, Covered Activities will be sited and designed to maintain the function of wildlife connectivity in the following linkage and connectivity areas: (1) across Interstate 10 centered on Wiley's Well Road to connect the Mule and McCoy mountains, (2) across Interstate 10 to connect the Chuckwalla and Palen mountains, (3) across Interstate 10 to connect the Chuckwalla Mountains to the Chuckwalla Valley east of Desert Center, and (4) the confluence of Milpitas Wash and Colorado River floodplain. In addition, the Riparian and Wetland Natural Communities and Covered Species CMAs will contribute to maintaining and promoting habitat connectivity and wildlife movement.

Table IV.7-141
GCP Impact Analysis for the Desert Linkage Network – Alternative 1

Desert Linkage Network by Ecoregion Subarea	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Cadiz Valley and Chocolate Mountains	148,000	1,000	20	-	1,000	2,000
Imperial Borrego Valley	10,000	100	-	30	20	200
Kingston and Funeral Mountains	12,000	-	-	-	-	-
Mojave and Silurian Valley	101,000	2,000	-	-	100	2,000
Owens River Valley	4,000	100	-	-	80	200
Panamint Death Valley	15,000	-	-	-	-	-
Pinto Lucerne Valley and Eastern Slopes	122,000	2,000	100	-	1,000	3,000
Piute Valley and Sacramento Mountains	24,000	-	-	-	-	-
Providence and Bullion Mountains	49,000	-	-	-	-	-
West Mojave and Eastern Slopes	468,000	5,000	200	-	200	5,000
Total	**952,000**	**10,000**	**400**	**30**	**2,000**	**12,000**

1 Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
2 Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Migratory Birds

Migration patterns and the potential impacts of different technologies are discussed, in the typical impacts section (Section IV.7.2.1.3), with direct habitat loss quantified in BR-4, and operational impacts quantified in BR-9. The following analysis focuses on the anticipated distribution of different technology types in relation to known migratory corridors, and migratory resources in each subarea.

In the Alternative 1 wind generation is a very small proportion of the overall generation mix. Nonfederal wind DFAs are divide between the West Mojave and Eastern Slopes, Pinto Lucerne Valley and Cadiz and Chocolate Mountain Subareas. Wind development would mostly occur on the eastern slopes of the Tehachapi Mountains and in the mountainous areas around Lucerne Valley. Key bird migration areas affected would include routes between the Tehachapi and San Bernardino passes, and the temporary lakes and wetland refuges on and to the north of Edwards AFB. Small quantities of wind development would also occur in the Cadiz and Chocolate Mountains subarea to the west of Blythe wash area, and north of the I-10. These areas are near to the Colorado River migratory corridor, and may affect migratory bird movement to and from the Coachella Valley.

As discussed in the plan-wide analysis impacts, solar development would be constructed throughout the West Mojave and Eastern Slopes, Pinto Lucerne Valley, Cadiz and Chocolate Mountain and Imperial Borrego Valley subareas. The alternative would result in new PV and solar thermal generation facilities along the I-10 corridor, and to the west side of the Colorado River, in disturbed lands west of Blythe. This may give the appearance of a string of lakes on known migratory linkages for birds between the Colorado River corridor, and the Coachella Valley. Similarly, development in the West Mojave and Eastern slopes, and Pinto Lucerne Valley subareas would occur in DFAs between the passes of the Tehachapi Mountains, the passes of the San Bernardino Mountains, and dry lakes on Edwards AFB, and in the North Mojave. Nonfederal DFAs, in the Imperial Borrego Valley subarea would primarily be in agricultural lands to the south of the Salton

Application of CMAs would require projects to be sited and designed to avoid impacts to occupied habitat and suitable habitat for Covered Species to the maximum extent feasible. Further, siting and construction CMAs would minimize direct loss of important migratory

bird habitat. Compensation CMAs would offset habitat loss for Covered Species. A bird and bat use and mortality monitoring program would be implemented during operations. Further, proposed projects that are likely to impact bird and bat Covered Species during operation would develop and implement a project-specific Bird and Bat Covered Species Operational Actions that meets the approval of the appropriate DRECP Coordination Group. The goal of the project-specific Actions would be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar and geothermal projects. Siting and construction CMAs would minimize direct loss of riparian and wetlands habitats. Compensation CMAs would offset habitat loss for Covered Species. The compensation requirements in the Bird and Bat Covered Species Operational Actions would be based on ongoing/annual fees and the biological basis for the fee would be determined by the mortality effects as annually measured and monitored according to the AM-LL-4. In combination, the application of siting, monitoring, operational and compensation CMAs would minimized impacts to migratory birds. Application of CMAs would reduce the overall impacts to migratory bird populations.

Impact BR-7: Siting, construction, decommissioning, and operational activities would result in habitat fragmentation and isolation of populations of listed and sensitive plants and wildlife.

As discussed in the Plan-wide analysis, the construction and operation of renewable energy and transmission projects can have the potential to fragment intact and interconnected landscapes resulting in isolated patches of habitat, isolated species populations, reduced gene flow, and remaining habitat that is more exposed to the edge effects of adjacent developments. The DRECP integrated planning process, as described in Volume II, avoids and minimizes this impact through the siting of DFAs and through the reserve design. In order to minimize habitat fragmentation and population isolation, DFAs were sited in less intact and more degraded areas. Measures of fragmentation and population isolation effects include the amount of impacts on environmental gradients such as elevation, landforms, slope, and aspect. The impacts to these four environmental gradients under Alternative 1 within DFAs under the GCP would follow the same overall pattern as Plan-wide impacts (AM-LL-1 through AM-LL-4).

Impact BR-8: Construction of generation facilities or transmission lines would result in increased predation of listed and sensitive wildlife species.

As discussed in the Plan-wide analysis, Covered Activities in undisturbed desert habitat are likely to supplement predators, and increase predation rates on Covered Species. GCP Alternative 1 would result 75,000 acres of permanent conversion of natural desert communities and with 70,000 acres of impacts to already disturbed communities; 48 % of impacts would occur in already disturbed lands. 39% of the impacts would occur in

Imperial Borrego Valley, 31% in West Mojave and Eastern Slopes, with 15% of impacts would occur in the Cadiz and Chocolate Mountains, 9% at Pinto Lucerne Valley, and the remaining 5 % spread across the rest of the Plan Area.

Development in the West Mojave and Eastern Slopes subareas may supplement predators in undisturbed habitats including parts of the Tehachapi Mountains and DFAs to the north of Edwards AFB. However, much of the development would be expected in disturbed and agricultural land around Lancaster and between city of Mojave and California City. In these areas, susceptible species would include nestlings and eggs of Covered Species like tricolored blackbird and golden eagle, mountain plover, Bendire's thrasher, Swainson's hawk, as well as small reptiles like the Tehachapi slender salamander, and mammals like the Mohave ground squirrel.

Covered Activities associated with solar and wind generation in the Pinto and Lucerne Valley subarea would affect areas in Lucerne Valley to the East of Victorville, and disturbed lands to the west of Adelanto. Species impacted would include golden eagle, and other nesting birds as well as small mammals and reptiles like desert tortoise.

The development in the Cadiz and Chocolate Mountains subarea would be expected in the agricultural and disturbed lands around Blythe, and to a lesser extent in nonfederal lands adjacent to the BLM SEZ in the I-10 corridor. Impacts are likely to increase predation on susceptible species including desert tortoise, Mojave fringe-toed lizard, and nesting bird species.

Anticipated solar and geothermal development in the Imperial Borrego Valley would occur in agricultural habitats south of and west side of the Salton Sea. Increased predation may affect nesting birds; impacts may affect flat-tailed horned lizard, desert tortoise, and nesting birds.

Application of a Common Raven management plan (AM-PW-6), approved by the appropriate DRECP Coordination Group would reduce project activities that increase predator subsidization. Activities include: removal of trash and organic waste; minimize introduction of new water sources including pooling of water from dust control; removal of carcasses from bird and bat collisions; and reduction in new nesting and perching sites where feasible.

Impact BR-9: Operational activities would result in avian and bat injury and mortality from collisions, thermal flux or electrocution at generation and transmission facilities.

The impacts of operation activities on avian and bat injury and mortality are analyzed below for wind turbines, solar, and transmission.

Wind Turbine

This section summarizes wind turbine operational impacts to bird and bat species within the nonfederal DFAs. The range of collision rates calculated in Table IV.7-142 is indicative of the overall annual collision rates for all bird and bat species, not just Covered Species. The Estimated ranges of annual collision rates for the final full build-out of wind are based on the range of collision rates in existing published and gray literature. While it is possible to provide a range of possible collision rates, it is not feasible to estimate the collision rate for each Covered Species, but only infer the propensity for a species to be at risk of collision from its expected distribution and life history of the birds in the Plan Area.

Overall, the Alternative 1 would result in a median of 2,000 collisions per year for birds and an estimated 10,000 collisions per year for bats in DFAs on nonfederal lands. The expected distribution of wind generation indicates that 57% of all collisions would occur in the West Mojave and Eastern Slopes subarea, 32% in the Pinto Lucerne Valley and Eastern Slopes subarea, 11% in the Cadiz Valley and Chocolate Mountains subarea

Wind operations in the Cadiz Valley and Chocolate Mountains region would result in a higher risk of collisions for Bendire's thrasher, burrowing owl, California black rail, Gila woodpecker, golden eagle, greater sandhill crane, mountain plover, western yellow-billed cuckoo, and Yuma clapper rail. Whereas, development in the Pinto and Lucerne Valley subarea would affect golden eagle territories and important Bendire's thrasher habitat. Development in the West Mojave would impact Bendire's thrasher, burrowing owl, California condor, golden eagle, mountain plover, southwestern willow flycatcher, Swainson's hawk, and tricolored blackbird.

Pre-construction CMAs require habitat assessments and pre-construction surveys for covered riparian and wetland bird, burrowing owl, greater sandhill crane, Swainson's hawk, Bendire's thrasher, golden eagle species.

Application of siting CMAs would avoid or minimize the risk to species localities. Setbacks from active nests would be required for Bendire's thrasher, California condor, Gila woodpecker, and golden eagle. In addition, projects would be sited and designed to avoid impacts to occupied habitat, and suitable habitat for Covered Species to the maximum extent feasible. Implementation of bat specific CMAs include 0.5 mile setbacks from all bat maternity roosts and 5% disturbance caps on desert scrub and woodland habitats in the vicinity of occupied Pallid bat and Townsend's Big eared Bats roosts would reduce impacts to covered bat species.

Applicants would develop and implement a project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meets the approval of the appropriate DRECP

Coordination Group. The goal of the project-specific BBOS will be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar, geothermal, or transmission project. A bird and bat use and mortality monitoring program will be implemented during operations using current protocols and best procedures available at time of monitoring. Further, the compensation requirements in the Bird and Bat Covered Species Operational Actions would be based on ongoing/annual fees and the biological basis for the fee will be determined by the mortality effects as annually measured and monitored according to the Bird and Bat Covered Species Operational Actions.

Similarly, a Condor Operations Strategy (COS) would be developed on a project-specific basis with the goal of avoiding mortality from operations of wind, solar and geothermal projects. No take for condors will be permitted in the form of kill from project operations. Any actions taken to encourage condors to leave an area that might result in harassment, injury, or mortality to the bird will be conducted by a Designated Biologist.

Table IV.7-142
GCP Estimated Range of Bird and Bat Collisions per Year by Subarea – Alternative 1

	# Turbines	Birds (Collisions/Yr)[1]			Bats (Collisions/Yr)[1]		
		Low	*Median*	*High*	*Low*	*Median*	*High*
Cadiz Valley and Chocolate Mountains	47	100	200	900	100	1,000	7,000
Imperial Borrego Valley	0	-	-	-	-	-	-
Kingston and Funeral Mountains	0	-	-	-	-	-	-
Mojave and Silurian Valley	0	-	-	-	-	-	-
Owens River Valley	0	-	-	-	-	-	-
Panamint Death Valley	0	-	-	-	-	-	-
Pinto Lucerne Valley and Eastern Slopes	144	200	700	3,000	300	3,000	20,000
Piute Valley and Sacramento Mountains	0	-	-	-	-	-	-
Providence and Bullion Mountains	0	-	-	-	-	-	-
West Mojave and Eastern Slopes	258	400	1,000	5,000	500	6,000	36,000
Grand Total	**449**	**700**	**2,000**	**9,000**	**900**	**10,000**	**63,000**

[1] Method for estimation of annual bird and bat collision rates described in Section IV.7.1.1.2 and discussed in more detail in Section IV.7.2.1.3

Note: The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the

totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Solar

Under Alternative 1, impacts to avian and bat species from solar development based on the planned solar capacity. The distribution of impacts under the GCP would be similar to that which is found in the Plan-wide analysis. Nonfederal DFAs would see a 6-fold increase in collision risks relative to baseline. 13% of the collision risks would occur in the Cadiz and Chocolate Mountains, with, 39% in Imperial Borrego Valley, 31% in West Mojave and Eastern Slopes, and, in 10% at Pinto Lucerne Valley and Eastern Slopes subarea. The remaining 6% spread across the rest of the plan area.

Development in the West Mojave and Eastern Slopes subareas would occur in the nonfederal lands surrounding city of Mojave and west of California City, to the northwest of Edwards AFB, and agricultural land around Lancaster. In these areas, susceptible species would include pallid bat, California leaf-nosed bat, Townsend's big-eared bat, tricolored blackbird, golden eagle, mountain plover, Bendire's thrasher, burrowing owls and to a lesser extent Swainson's hawk,.

Covered Activities associated with solar generation in the Pinto and Lucerne Valley subarea would affect nonfederal lands in the western part of Lucerne Valley and in rural and agricultural lands to the west of Adelanto. Species impacted would include the same species as the West Mojave and Eastern Slopes subarea.

Development in the Cadiz and Chocolate Mountains subarea under the GCP would occur in the agricultural lands around Blythe, and to a lesser extent in nonfederal lands adjacent to the BLM SEZ in the I-10 corridor. Species impacted by Covered Activities include Bendire's thrasher, burrowing owl, Gila woodpecker, golden eagle, greater sandhill crane, mountain plover, pallid bat, California leaf-nosed bat, and Townsend's big-eared bat.

Anticipated impacts in the Imperial Borrego Valley subarea under the GCP would occur in areas to the south and west of the Salton Sea. Birds at risk from solar impacts include Bendire's thrasher, burrowing owl, California black rail, Gila woodpecker, golden eagle, greater sandhill crane, mountain plover, southwestern willow flycatcher, Swainson's hawk, Yuma clapper rail, pallid bat, California leaf-nosed bat, and Townsend's big-eared bat.

To offset potential impacts, the application of CMAs would require projects to be sited and designed to avoid impacts to occupied and suitable habitat for Covered Species, to the maximum extent feasible. Further, siting and construction CMAs require setbacks from riparian and wetland habitats which would minimize direct loss. Compensation CMAs would offset habitat loss for Covered Species. A bird and bat use and mortality monitoring

program would be implemented during operations. Any proposed projects that are likely to impact bird and bat Covered Species during operation would develop and implement project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meet the approval of the appropriate DRECP Coordination Group. The goal of the project-specific Bird and Bat Covered Species Operational Actions would be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar and geothermal projects. The compensation requirements of AM-LL-4 would be based on ongoing/annual fees and the biological basis for the fee would be determined by the mortality effects as annually measured and monitored according to AM-LL-4. In combination, the application of siting, monitoring, operational and compensation CMAs would minimize impacts to resident and migratory birds.

Bat mortality from solar facilities may occur because of collision or solar flux injury. No DFAs are known to be specifically sensitive areas for bat foraging, and implementation of bat specific CMAs include 500 feet setbacks from all bat maternity roosts and 5% disturbance caps on desert scrub and woodland habitats in the vicinity of occupied pallid bat and Townsend's big-eared bat roosts would reduce impacts to bat Covered Species. Further, the development of Bird and Bat Covered Species Operational Actions (AM-LL-4) as discussed above would greatly reduce the risk to bat populations. Consequently, application of CMAs would reduce the overall impacts to bat populations.

Transmission

The transmission collision and electrocution impacts would occur from generation tie lines (collector lines), new substations, and major transmission lines (delivery lines) that deliver power to major load centers. The distribution of impacts from collector lines would mostly occur within DFAs and be similar in distribution to the generation facilities. Most of the affected areas on nonfederal lands would be in West Mojave and Eastern Slopes, Pinto Lucerne Valley, Cadiz Valley and Chocolate Mountains, Mojave and Silurian Valley and the Imperial Borrego Valley subareas, with 1,000 acres, 1,000 acres, 3,000 acres, 1,000 acres, and 13,000 acres of terrestrial impacts respectively. The remaining 300 acres of terrestrial impacts would be spread throughout the remaining subareas.

Both large transmission lines and the network of smaller gen-tie lines would present collision and electrocution hazard to covered bird species. In particular, lines running perpendicular to migratory corridors, and/or close to bird refuges would represent a greater hazard. Such lines would include those anticipated to run parallel to the Tehachapi mountains and those that would cross the Tehachapi mountain passes. In addition, anticipated delivery lines parallel to I-10 corridor in the existing transmission corridors would also present a collision risk. In the Imperial Borrego Valley subarea, delivery lines would run along the along the eastern side of Salton Sea in existing transmission corridors

that run parallel to the foothills of the Chocolate Mountains; and would also run from east to west between the Imperial Valley and the San Diego area. All lines would represent additional risk to migrating and overwintering covered avian species, due to their location. Collision risks in these areas increase during storm events when flocks of migrating birds come down to wait out the storms before continuing their migration

All bird Covered Species may be impacted by additional transmission infrastructure. To ameliorate potential hazards, transmission projects would reduce impacts to Covered Species by implementing Plan-wide, landscape-level, natural community, and Covered Species CMAs where feasible, as discussed under the wind impacts section.

Applicants would develop and implement a project-specific Bird and Bat Operational Strategy Bird and Bat Covered Species Operational Actions AM-LL-4) that meets the approval of the appropriate DRECP Coordination Group. The goal of the project-specific Bird and Bat Covered Species Operational Actions will be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar, geothermal, or transmission project. A bird and bat use and mortality monitoring program will be implemented during operations using current protocols and best procedures available at time of monitoring. Further, the compensation requirements in the Bird and Bat Covered Species Operational Actions would be based on ongoing/annual fees and the mortality effects as annually measured and monitored according to the Bird and Bat Covered Species Operational Actions will determine the biological basis for the fee.

In addition, transmission projects would implement transmission specific CMAs that would, where feasible, bury electrical collector lines along roads (AM-TRANS-1); fit flight diverters on all transmission projects spanning or within 1,000 feet of water bodies and watercourses (AM-TRANS-2); avoid siting transmission projects that span canyons or are located on ridgelines (AM-TRANS-3); restrict transmission projects to within designated utility corridors (AM-TRANS-4). With the implementation of CMAs impacts to Covered Species would minimized.

Operational Impacts Take Estimates for Covered Avian and Bat Species

The following section summaries the initial estimates for take of Covered Species by operational activities that would require compensatory mitigation. Take estimates integrate all sources of mortality for each technology discussed above.

Table IV.7-143
GCP Estimated Total Take for Covered Avian and Bat Species – Alternative 1

Covered Bird and Bat Species	Solar Impact	Wind Impact	Geothermal Impact	Total Impact
Bendire's thrasher	40	10	0	50
Burrowing owl	180	0	10	190
California condor[1]	0	0	0	0
California black rail	40	0	0	40
Gila woodpecker	40	0	0	40
Golden eagle[2]	n/a	n/a	n/a	n/a
Least Bell's vireo	90	0	0	90
Mountain plover	90	10	10	110
Greater sandhill crane	20	0	10	30
Southwestern willow flycatcher	70	0	0	70
Swainson's hawk	50	0	0	50
Tricolored blackbird	80	10	0	90
Western yellow billed cuckoo	40	0	0	40
Yuma clapper rail	40	0	0	40
Grand Total Avian Species	**780**	**30**	**30**	**840**
California leaf-nosed bat	20	0	0	20
Pallid bat	20	20	0	40
Townsend's big-eared bat	60	0	10	70
Grand Total Bat Species	**100**	**20**	**10**	**130**

1 Take for California condor would not be permitted under the DRECP.

2 Take of Golden Eagle would be permitted on a project by project basis. Based on the 2013 analysis, no more than 15 golden eagles per year would be authorized for 2014 for any new activity within the Plan Area. Take limits for the DRECP area will be re-evaluated annually based on the amount of ongoing take and population estimates of eagles within the local-area population of eagles.

Note: The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

IV.7.3.3.4.2 Impacts of the Reserve Design under the General Conservation Plan

In the nonfederal GCP portion of the Plan Area for Alternative 1, the Reserve Design Lands include existing conservation areas on nonfederal lands (433,000 acres), nonfederal lands within BLM LUPA conservation designations (1,211,000 acres), and Conservation Planning Areas on nonfederal lands (1,223,000 acres). The following provides an analysis of the conservation that would be provided by these areas, organized by landscape, natural communities, and species.

Landscape

Habitat Linkages

Table IV.7-144 shows the conservation of the desert linkage network under Alternative 1 for the GCP. Conservation of the desert linkage network totals more than 298,000 acres (31%). None of the linkages are entirely conserved under the GCP. However, the majority of the linkage from the southern end of the Plan Area directly north to the Los Angeles/Kern County line in the West Mojave and Eastern Slopes subarea is conserved, as well as the part of the linkage across the Mojave Desert farther north. In addition to conservation of the desert linkage network, CMAs provide for the avoidance and minimization of certain linkages in the DFAs (see Section IV.7.3.2.4.1).

Table IV.7-144
GCP Conservation Analysis for the Desert Linkage Network – Alternative 1

Desert Linkage Network by Ecoregion Subarea	Available Lands (acres)	Existing Conservation[1] (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3](acres)	Total Conservation (acres)	% of Available Lands
Cadiz Valley and Chocolate Mountains	148,000	2,000	46,000	8,000	56,000	38%
Imperial Borrego Valley	10,000	-	2,000	200	2,000	17%
Kingston and Funeral Mountains	12,000	30	2,000	400	2,000	17%
Mojave and Silurian Valley	101,000	5,000	11,000	6,000	22,000	22%
Owens River Valley	4,000	-	2,000	700	3,000	59%
Panamint Death Valley	15,000	6,000	2,000	500	8,000	58%

Table IV.7-144
GCP Conservation Analysis for the Desert Linkage Network – Alternative 1

Desert Linkage Network by Ecoregion Subarea	Available Lands (acres)	Existing Conservation[1] (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3](acres)	Total Conservation (acres)	% of Available Lands
Pinto Lucerne Valley and Eastern Slopes	122,000	12,000	25,000	1,000	39,000	32%
Piute Valley and Sacramento Mountains	24,000	-	2,000	2,000	4,000	17%
Providence and Bullion Mountains	49,000	4,000	6,000	3,000	13,000	27%
West Mojave and Eastern Slopes	468,000	26,000	71,000	51,000	148,000	32%
Grand Total	**951,851**	**55,768**	**380,359**	**118,550**	**554,677**	**58%**

1 Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on nonfederal land

2 Includes nonfederal inholdings within existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations)

Notes: Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Hydrological Resources

A conservation analysis for hydrological resources is provided below, including playa, seep/spring, and the four major rivers in the Plan Area (i.e., Amargosa, Colorado, Mojave and Owens) under Alternative 1 within the GCP. Conservation of riparian areas and wetlands, which co-occur with many of these hydrological resources is provided below under Natural Communities.

Playa

Playa totals 74,000 acres in the Plan Area. Overall, 20% (15,000 acres) would be conserved under Alternative 1 within the GCP. Existing Conservation would account for 15% of the conservation, BLM LUPA would account for 71%, and Conservation Planning Areas would account for 14%. Additionally, playas and associated Covered Species, natural communities,

and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks. CMAs for playas would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided riparian or wetland natural communities.

Seep/Spring

There are 176 seep/spring locations in the Plan Area under Alternative 1 within the GCP. Overall, 30% (53 locations) of the seep/spring locations would be conserved under Alternative 1 within the GCP. The conservation of seep/spring under Alternative 1 would be less than half in all subareas. These include Imperial Borrego Valley (46%, 9 locations), Kingston and Funeral Mountains (17%, 3 locations), Mojave and Silurian Valley (24%, 2 locations), Owens River Valley (23%, 6 locations), Pinto Lucerne Valley and Eastern Slopes (38%, 13 locations), Providence and Bullion Mountains (28%, 3 locations), and West Mojave and Eastern Slopes (28%, 17 locations).

Overall, Existing Conservation would account for 14% of the conservation of seep/spring, BLM LUPA conservation designations would account for 54%, and Conservation Planning Areas would account for 33%. Additionally, seeps and springs and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks. CMAs for seep/spring locations would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided wetland natural communities.

Major Rivers

Overall, 61% of the major rivers would be conserved under Alternative 1 within the GCP, including 25% of the Amargosa River, 33% of the Colorado River, 67% of the Mojave River, and 70% of the Owens River. Conservation Planning Areas would account for 48% of the conservation of the major rivers, Existing Conservation would account for 5%, and BLM LUPA conservation designations would account for 7%. Additionally, major rivers and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks.

Dune and Sand Resources

Overall, 21% (44,000 acres) of dunes and sand resources would be conserved under Alternative 1 within the GCP. Less than 50% of dunes and sand resources would be conserved in all of the subareas in the Plan Area that contain substantial acreage of dunes

and sand resources, including Cadiz Valley and Chocolate Mountains at 23% (16,000 acres), Imperial Borrego Valley at 30% (3,000 acres), Kingston and Funeral Mountains at 21% (2,000 acres), Mojave and Silurian Valley at 18% (5,000 acres), Owens River Valley at 25% (900 acres), Panamint and Death Valley at 33% (33 acres), Providence and Bullion Mountains at 18% (8,000 acres) and West Mojave and Eastern Slopes at 18% (5,000 acres). Additionally, dunes and sand resources and associated Covered Species, natural communities and ecological functions would be avoided through application of the dune avoidance and minimization CMAs.

Environmental Gradients

The conservation analysis addresses four types of environmental gradients in the Plan Area: elevation, landforms, slope, and aspect. The conservation of these four environmental gradients under Alternative 1 within the GCP would follow the same overall pattern as Plan-wide conservation.

Natural Communities

Table IV.7-145 shows the conservation to natural communities under the GCP. A conservation summary by general community is provided below in comparison to Plan-wide conservation discussed in Section IV.7.3.2.1.2. Appendix R2 provides a detailed analysis of natural community conservation by ecoregion subarea.

California forest and woodlands

Overall, approximately 24,000 acres (23%) of California forest and woodlands would be conserved under Alternative 1 under the GCP, which is less than half of the conserved acreage of California forest and woodland compared to the Plan-wide conservation of this general community. The majority of the total conserved acreage would occur in the West Mojave and Eastern Slopes subarea, but only 18% of the available California forest and woodland acreage would be conserved in this subarea. Conservation would primarily come from BLM LUPA conservation designations. In addition to conservation of California forest and woodlands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 12,000 acres (15%) of chaparral and coastal scrubs would be conserved under Alternative 1 under the GCP, which is approximately one third of the conserved acreage of chaparral and coastal scrubs compared to the Plan-wide conservation of this general community. The majority of total conservation of this general community

would occur in the West Mojave and Eastern Slopes subarea (though only 13% of the available chaparral and coastal scrubs in this subarea are conserved) and most of the conservation of this general community would occur in Conservation Planning Areas. In addition to conservation of chaparral and coastal scrubs, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert conifer woodlands

Overall, approximately 20,000 acres (20%) of desert conifer woodlands would be conserved under Alternative 1 under the GCP, which is less proportionally than would be conserved Plan-wide and is only approximately 11% of the conserved acreage of desert conifer woodlands compared to the Plan-wide conservation of this general community. The majority of conservation would occur in the West Mojave and Eastern Slopes subarea. Conservation would primarily come from Conservation Planning Areas. In addition to conservation of desert conifer woodlands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert outcrop and badlands

Overall, approximately 109,000 acres (50%) of desert outcrop and badlands would be conserved under Alternative 1 under the GCP, which is a lesser proportion of available lands than is conserved Plan-wide. The majority of conservation would occur in the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas. Conservation would primarily come from existing conservation. In addition to conservation of desert outcrop and badlands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert scrubs

Overall, approximately 826,000 acres (28%) of desert scrubs would be conserved under Alternative 1 under the GCP, which is a lesser proportion of available lands than is conserved Plan-wide. The majority of conservation would occur in the Imperial Borrego Valley and West Mojave and Eastern Slopes subareas. Conservation would primarily come from BLM LUPA conservation designations and existing conservation. In addition to conservation of desert scrubs, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed

management, and fire prevention/protection to benefit these natural communities and the species they support.

Dunes

Overall, approximately 7,000 acres (22%) of dunes would be conserved under Alternative 1 under the GCP, which is a lesser proportion of available lands conserved Plan-wide. Most of the dunes would be conserved in the Mojave and Silurian Valley and Imperial Borrego Valley subareas. Conservation would primarily come from Conservation Planning Areas. In addition, CMA application would require avoidance of all dunes and prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

Grasslands

Overall, approximately 27,000 acres (13%) of grasslands would be conserved under Alternative 1 under the GCP, which is a greater proportion of available lands compared to that conserved Plan-wide. The majority of conservation would occur in the West Mojave and Eastern Slopes subarea. Almost half of the conservation would be in Conservation Planning Areas. In addition to conservation of grasslands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Riparian

Overall, approximately 73,000 acres (37%) of riparian communities would be conserved under Alternative 1 under the GCP, which is a lesser proportion of available lands than is conserved Plan-wide. Most of the conservation would occur in the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas. Conservation would be distributed relatively evenly between existing conservation areas, BLM LUPA conservation designations, and Conservation Planning Areas. In addition, CMA application would require avoidance of and setbacks from all riparian communities as well as to other CMAs that would benefit riparian communities beyond simply conservation.

Wetlands

Overall, approximately 73,000 acres (22%) of riparian communities would be conserved under Alternative 1 under the GCP, which is a lesser proportion of available lands than is conserved Plan-wide. Most of the conservation would occur in the Owens River Valley, Imperial Borrego Valley, and West Mojave and Eastern Slopes subareas. Conservation would primarily come from BLM LUPA conservation designations. In addition, CMA

application would require avoidance of and setbacks from Arid West freshwater emergent marsh and Californian warm temperate marsh/seep as well as other CMAs that would benefit riparian communities beyond simply conservation.

Table IV.7-145
GCP Conservation Analysis for Natural Communities – Alternative 1

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3](acres)	Total Conservation (acres)	% of Available Lands
California forest and woodland						
Californian broadleaf forest and woodland	61,000	800	10,000	800	11,000	19%
Californian montane conifer forest	44,000	7,000	5,000	2,000	13,000	30%
Chaparral and coastal scrub community (Cismontane scrub)						
Californian mesic chaparral	3,000	20	400	200	600	17%
Californian pre-montane chaparral	1,000	0	200	10	200	19%
Californian xeric chaparral	19,000	600	600	3,000	4,000	20%
Central and south coastal California seral scrub	1,000	0	0	50	50	4%
Central and South Coastal Californian coastal sage scrub	42,000	300	2,000	4,000	6,000	15%
Western Mojave and Western Sonoran Desert borderland chaparral	15,000	600	100	800	2,000	10%
Desert conifer woodlands						
Great Basin Pinyon - Juniper Woodland	104,000	7,000	2,000	12,000	20,000	20%
Desert outcrop and badlands						
North American warm desert bedrock cliff and outcrop	220,000	68,000	29,000	12,000	109,000	50%

Table IV.7-145
GCP Conservation Analysis for Natural Communities – Alternative 1

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3](acres)	Total Conservation (acres)	% of Available Lands
Desert Scrub						
Arizonan upland Sonoran desert scrub	8,000	3,000	0	800	4,000	49%
Intermontane deep or well-drained soil scrub	24,000	2,000	4,000	2,000	7,000	29%
Intermontane seral shrubland	68,000	500	1,000	3,000	5,000	7%
Inter-Mountain Dry Shrubland and Grassland	152,000	21,000	15,000	8,000	44,000	29%
Intermountain Mountain Big Sagebrush Shrubland and steppe	48,000	1,000	7,000	900	9,000	18%
Lower Bajada and Fan Mojavean - Sonoran desert scrub	2,254,000	246,000	268,000	172,000	685,000	30%
Mojave and Great Basin upper bajada and toeslope	228,000	13,000	12,000	21,000	46,000	20%
Shadscale - saltbush cool semi-desert scrub	157,000	1,000	7,000	18,000	26,000	17%
Southern Great Basin semi-desert grassland	70	0	0	0	0	5%
Dunes						
North American warm desert dunes and sand flats	34,000	800	2,000	4,000	7,000	22%
Grassland						
California Annual and Perennial Grassland	196,000	8,000	5,000	12,000	25,000	13%
California annual forb/grass vegetation	7,000	400	200	1,000	2,000	25%

Table IV.7-145
GCP Conservation Analysis for Natural Communities – Alternative 1

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3](acres)	Total Conservation (acres)	% of Available Lands
Riparian						
Madrean Warm Semi-Desert Wash Woodland/Scrub	96,000	3,000	24,000	6,000	34,000	35%
Mojavean semi-desert wash scrub	17,000	3,000	900	2,000	6,000	35%
Riparian	600	20	0	300	300	57%
Sonoran-Coloradan semi-desert wash woodland/scrub	34,000	11,000	5,000	3,000	18,000	54%
Southwestern North American riparian evergreen and deciduous woodland	6,000	400	300	2,000	2,000	40%
Southwestern North American riparian/wash scrub	47,000	3,000	3,000	6,000	13,000	27%
Wetland						
Arid West freshwater emergent marsh	4,000	40	200	1,000	1,000	33%
Californian warm temperate marsh/seep	400	0	0	80	80	20%
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	36,000	2,000	4,000	2,000	8,000	22%
Open Water	114,000	800	1,000	14,000	16,000	14%
Playa	52,000	20	11,000	300	11,000	22%
Southwestern North American salt basin and high marsh	112,000	3,000	22,000	10,000	35,000	31%
Wetland	8,000	30	200	500	700	9%

Table IV.7-145
GCP Conservation Analysis for Natural Communities – Alternative 1

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3](acres)	Total Conservation (acres)	% of Available Lands
Other Land Cover						
Agriculture	693,000	5,000	3,000	4,000	12,000	2%
Developed and Disturbed Areas	399,000	500	2,000	300	2,000	1%
Not Mapped	4,000	50	200	300	600	14%
Rural	110,000	400	4,000	8,000	12,000	11%
Total	**5,420,000**	**412,000**	**450,000**	**338,000**	**1,199,000**	**22%**

1 Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on nonfederal land

2 Includes nonfederal inholdings within existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations)

3 Conservation Planning Areas include areas of the reserve design from which reserve areas would be assembled on private and other public land.

Notes: Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Covered Species Habitat

Table IV.7-146 shows the conservation of Covered Species modeled habitat under the Alternative 1 (before the application of CMAs) under the GCP. Generally, the percent conservation of Covered Species modeled habitat in available lands is highly variable, ranging from 1% for greater sandhill crane (primarily found in agricultural areas) to 63% for Mohave tui chub.

Conservation percentages are in large part related to the location and types of habitat modeled for the Covered Species. For example, modeled habitat for greater sandhill crane, which is primarily freshwater wetland and agriculture, is limited to the Palo Verde and Imperial valleys and is mostly within DFAs.

Much of the modeled habitats for desert tortoise and Mojave fringe-toed lizard are in the Mojave Desert in areas that are either in Conservation Planning Areas or occur in the BLM

LUPA conservation designations. Flat-tailed horned lizard modeled habitat is only conserved in the Imperial Borrego Valley, mostly in existing conservation. Tehachapi slender salamander modeled habitat occurs in the Tehachapi Mountains where conservation is primarily composed of BLM LUPA conservation designations. Furthermore, the siting of the DFAs under Alternative 1 largely avoids habitat for Mojave fringe-toed lizard and Tehachapi slender salamander, and CMAs require avoidance of and setbacks from riparian habitat, wetland habitat, and dune habitat would further avoid and minimize the impacts on these species.

Conservation of bird species associated primarily with wetland and riparian habitats, including California black rail, least Bell's vireo, southwestern willow flycatcher, tricolored blackbird, western yellow-billed cuckoo, and Yuma clapper rail would be augmented by CMAs requiring avoidance of and setbacks from riparian and wetland habitats. Conservation of Bendire's thrasher occurs in nearly every subarea of the Plan Area and is mainly in BLM LUPA conservation designations. Burrowing owl, widespread, but mainly associated with open areas in the West Mojave and Eastern Slopes, would primarily be conserved in BLM LUPA conservation designations and Conservation Planning Areas.

California condor mainly occurs in the West Mojave and Eastern Slopes subarea so the majority of conservation is also in this subarea with most of the conserved acreage in BLM LUPA conservation designations and Conservation Planning Areas. Golden eagle modeled suitable habitat and associated conservation is widespread in the Plan Area with most of the conservation in BLM LUPA conservation designations and existing conservation areas. Swainson's hawk is primarily associated with the West Mojave and Eastern Slopes, Imperial Borrego Valley, and Owens River Valley subareas; of these subareas, more than 20% of suitable habitat is conserved only in the Owens River Valley subarea. In addition to conservation of suitable habitat, CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs.

Most of the modeled suitable habitat for Gila woodpecker is conserved in the Imperial Borrego Valley in existing conservation. Conservation of mountain plover suitable habitat is mostly in Conservation Planning Areas in the West Mojave and Eastern Slopes subarea.

Conservation of suitable habitat for desert pupfish and Mohave tui chub is mostly in existing conservation areas. Although conservation of desert pupfish is relatively low especially in the Imperial Borrego Valley subarea, avoidance and setback provisions for managed wetlands and agricultural drains would conserve wetland and riparian features within the agricultural matrix and provide conservation benefits to desert pupfish. Owens pupfish and Owens tui chub are conserved primarily in Conservation Planning Areas.

Conservation of suitable habitat for bighorn sheep, both inter-mountain and mountain habitat, is widespread and is mainly in BLM LUPA conservation designations and existing conservation areas. The siting of the DFAs under Alternative 1 largely avoid habitat for bighorn sheep. At least 35% of the conservation of burro deer, desert kit fox, and Mojave ground squirrel suitable habitat is from BLM LUPA conservation designations. Suitable habitat for the covered bat species—California leaf-nosed bat, pallid bat, and Townsend's big-eared bat—is widespread and mainly conserved in BLM LUPA conservation designations and existing conservation areas. In addition to conservation of suitable habitat for covered mammal species, the CMAs require avoidance of and setbacks from riparian and wetland habitat that would reduce impacts on these habitats used by Mohave ground squirrel, California leaf-nosed bat, pallid bat, and Townsend's big-eared bat.

Conservation of plant species ranges from 7% of suitable habitat for alkali mariposa-lily to 44% of suitable habitat for Barstow woolly sunflower. The proportion of suitable habitat conserved in existing conservation, BLM LUPA conservation designations, and Conservation Planning Areas varies by species. However, in addition to the conservation of modeled suitable habitat, the CMAs require surveys for plant Covered Species for all Covered Activities, and the CMAs requiring avoidance of and setbacks from occupied habitat would further reduce the impacts on these species.

In addition to conservation of suitable habitat for Covered Species, compensation CMAs would offset habitat loss for all Covered Species.

Table IV.7-146
GCP Conservation Analysis for Covered Species Habitat – Alternative 1

Species	Available Lands (acres)	Existing Conservation[1] (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Amphibian/Reptile						
Agassiz's desert tortoise	2,248,000	140,000	301,000	185,000	626,000	28%
Flat-tailed horned lizard	310,000	112,000	20,000	4,000	136,000	44%
Mojave fringe-toed lizard	168,000	3,000	16,000	11,000	30,000	18%
Tehachapi slender salamander	41,000	300	7,000	700	8,000	19%

Table IV.7-146
GCP Conservation Analysis for Covered Species Habitat – Alternative 1

Species	Available Lands (acres)	Existing Conservation[1] (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Bird						
Bendire's thrasher	405,000	35,000	32,000	25,000	92,000	23%
Burrowing owl	3,244,000	73,000	217,000	194,000	484,000	15%
California black rail	127,000	5,000	500	6,000	12,000	9%
California condor	997,000	43,000	44,000	56,000	143,000	14%
Gila woodpecker	56,000	4,000	1,000	2,000	7,000	12%
Golden eagle–foraging	1,498,000	154,000	221,000	108,000	483,000	32%
Golden eagle–nesting	676,000	108,000	73,000	42,000	223,000	33%
Greater sandhill crane	601,000	5,000	500	1,000	7,000	1%
Least Bell's vireo	104,000	9,000	7,000	17,000	33,000	31%
Mountain plover	811,000	6,000	4,000	15,000	25,000	3%
Southwestern willow flycatcher	258,000	6,000	15,000	18,000	39,000	15%
Swainson's hawk	1,339,000	15,000	30,000	70,000	114,000	9%
Tricolored blackbird	257,000	6,000	4,000	18,000	28,000	11%
Western yellow-billed cuckoo	111,000	2,000	5,000	23,000	31,000	28%
Yuma clapper rail	31,000	3,000	10	2,000	5,000	16%
Fish						
Desert pupfish	7,000	800	10	200	1,000	14%
Mohave tui chub	100	70	-	20	90	63%
Owens pupfish	13,000	-	600	4,000	4,000	31%
Owens tui chub	13,000	-	600	4,000	4,000	31%
Mammal						
Bighorn sheep – inter-mountain habitat	465,000	40,000	60,000	23,000	123,000	27%
Bighorn sheep – mountain habitat	807,000	149,000	78,000	56,000	283,000	35%
California leaf-nosed bat	979,000	137,000	121,000	54,000	313,000	32%

Table IV.7-146
GCP Conservation Analysis for Covered Species Habitat – Alternative 1

Species	Available Lands (acres)	Existing Conservation[1] (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Mohave ground squirrel	1,319,000	51,000	165,000	152,000	367,000	28%
Pallid bat	3,775,000	393,000	406,000	278,000	1,077,000	29%
Townsend's big-eared bat	3,510,000	308,000	368,000	260,000	936,000	27%
Plant						
Alkali mariposa-lily	117,000	200	70	8,000	8,000	7%
Bakersfield cactus	200,000	17,000	12,000	12,000	41,000	21%
Barstow woolly sunflower	82,000	3,000	21,000	12,000	36,000	44%
Desert cymopterus	137,000	2,000	28,000	17,000	47,000	34%
Little San Bernardino Mountains linanthus	130,000	5,000	6,000	5,000	16,000	12%
Mojave monkeyflower	41,000	100	10,000	200	10,000	26%
Mojave tarplant	129,000	19,000	13,000	8,000	40,000	31%
Owens Valley checkerbloom	92,000	200	4,000	18,000	22,000	24%
Parish's daisy	72,000	19,000	8,000	2,000	28,000	39%
Triple-ribbed milk-vetch	3,000	900	10	400	1,000	43%

1 Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on nonfederal land.

2 Includes nonfederal inholdings within existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations)

3 Conservation Planning Areas include areas of the reserve design from which reserve areas would be assembled on private and other public land.

Notes: Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For Agassiz's desert tortoise, desert tortoise important areas were identified that include tortoise conservation areas (TCAs), desert tortoise linkages, and desert tortoise high priority habitat (see desert tortoise BGOs in Appendix C). Table IV.7-147 provides a conservation analysis for these desert tortoise important areas, organized by desert tortoise Recovery Units: Colorado Desert, Eastern Mojave, and Western Mojave. Within the Colorado Desert Recovery Unit, 35% of TCAs, linkage habitat, and high priority habitat would be conserved under Alternative 1. Within the Eastern Mojave Recovery Unit, 26% of the important areas would be conserved Alternative 1. Within the Western Mojave Recovery Unit, 32% of TCAs and linkage habitat would be conserved under Alternative 1. CMAs would require avoidance of TCAs, except for impacts associated with transmission or impacts in disturbed portions of TCAs. Additionally, the CMAs would prohibit impacts that affect the viability of desert tortoise linkages. Compensation CMAs would be required for impacts to desert tortoise, including desert tortoise important areas.

Table IV.7-147
GCP Conservation Analysis for Desert Tortoise Important Areas – Alternative 1

Recovery Unit	Desert Tortoise Important Area	Available Lands (acres)	Existing Conservation[1] (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Colorado Desert	High Priority Habitat	31,000	800	7,000	3,000	11,000	34%
	Linkage	63,000	100	9,000	4,000	13,000	20%
	TCA	269,000	16,000	74,000	15,000	105,000	39%
Colorado Desert Total		*363,000*	*17,000*	*90,000*	*22,000*	*128,000*	*35%*
Eastern Mojave	Linkage	56,000	4,000	4,000	7,000	14,000	25%
	TCA	66,000	6,000	3,000	9,000	18,000	27%
Eastern Mojave Total		*122,000*	*10,000*	*6,000*	*15,000*	*32,000*	*26%*
Western Mojave	Linkage	407,000	2,000	32,000	23,000	57,000	14%
	TCA	392,000	23,000	174,000	4,000	201,000	51%
Western Mojave Total		*798,000*	*25,000*	*206,000*	*27,000*	*258,000*	*32%*
Grand Total		**1,283,000**	**52,000**	**302,000**	**64,000**	**418,000**	**33%**

1 Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on nonfederal land

2 Includes nonfederal inholdings within existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations)

3 Conservation Planning Areas include areas of the reserve design from which reserve areas would be assembled on private and other public land.

Notes: Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA

conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For Mohave ground squirrel, Mohave ground squirrel important areas were identified that include key population centers, linkages, expansion areas, and climate change extension areas (see Mohave ground squirrel BGOs in Appendix C). Table IV.7-148 provides a conservation analysis for these Mohave ground squirrel important areas. Approximately 46% of key populations centers and 51% of linkages would be conserved under Alternative 1. Expansion areas and climate change extension areas would be conserved at 51% and 32% respectively. CMAs would require protocol surveys in population centers and linkages, as well as provide other measures to offset the loss of habitat for Mohave ground squirrel. Additionally, the CMAs would prohibit impacts that affect the viability of linkages. Compensation CMAs would be required for impacts to Mohave ground squirrel, including Mohave ground squirrel important areas.

Table IV.7-148
GCP Conservation Analysis for Mohave Ground Squirrel Important Areas – Alternative 1

Mohave Ground Squirrel Important Area Type	Available Lands (acres)	Existing Conservation[1] (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Key Population Center	193,000	14,000	46,000	29,000	88,000	46%
Linkage	103,000	3,000	22,000	27,000	52,000	51%
Expansion Area	258,000	21,000	57,000	53,000	131,000	51%
Climate Change Extension	131,000	13,000	5,000	24,000	41,000	32%
Total	**684,000**	**50,000**	**130,000**	**132,000**	**313,000**	**46%**

1 Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on nonfederal land

2 Includes nonfederal inholdings within existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations)

3 Conservation Planning Areas include areas of the reserve design from which reserve areas would be assembled on private and other public land.

Notes: Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000;

values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Within the Plan Area, critical habitat has been designated by the USFWS for the following Covered Species: desert tortoise, southwestern willow flycatcher, desert pupfish, and Parish's daisy. For desert tortoise, approximately 47% of the desert tortoise designated critical habitat on nonfederal lands would be conserved under Alternative 1, including 30,000 acres in existing conservation areas, 215,000 acres in BLM LUPA conservation designations, and 12,000 acres in Conservation Planning Areas. For southwestern willow flycatcher, approximately 60% of the southwestern willow flycatcher designated critical habitat on nonfederal lands would be conserved in Reserve Design Lands under Alternative 1, including 600 acres in existing conservation areas, 30 acres in BLM LUPA conservation designations, and 3,000 acres in Conservation Planning Areas. For desert pupfish, approximately 76% of the desert pupfish designated critical habitat on nonfederal lands would be conserved in Reserve Design Lands under Alternative 1, including 100 acres in existing conservation areas and 100 acres in BLM LUPA conservation designations. For Parish's daisy, approximately 36% of the Parish's daisy designated critical habitat on nonfederal lands would be conserved in Reserve Design Lands under Alternative 1, including 200 acres in BLM LUPA conservation designations.

Non-Covered Species Critical Habitat

Eight Non-Covered Species have Critical Habitat within GCP Lands. Table IV.7-149 shows the total amount of Critical Habitat and the amount within each reserve designation for Non-Covered Species. These reserve designations are considered beneficial impacts for biological resources. All or a substantial portion of each species' Critical Habitat in the GCP Lands would be within one of the conservation designations. Critical Habitat for bighorn sheep occurs mostly within existing conservation and within Conservation Planning Areas for arroyo toad, but mostly within nonfederal inholdings on BLM land for the other species.

Table IV.7-149
Critical Habitat within GCP Lands for Non-Covered Species – Alternative 1

Common Name	Acres of Critical Habitat within GCP Lands	Acres of Critical Habitat in Existing Conservation	Acres of Critical Habitat in BLM LUPA Lands (Nonfederal Inholdings)	Acres of Critical Habitat in Conservation Planning Areas	Acres in Conservation
Amargosa vole	600	0	300	0	300

Table IV.7-149
Critical Habitat within GCP Lands for Non-Covered Species – Alternative 1

Common Name	Acres of Critical Habitat within GCP Lands	Acres of Critical Habitat in Existing Conservation	Acres of Critical Habitat in BLM LUPA Lands (Nonfederal Inholdings)	Acres of Critical Habitat in Conservation Planning Areas	Acres in Conservation
Arroyo toad	4,000	0	20	3,000	3,020
Cushenbury buckwheat	200	0	100	0	100
Cushenbury milk-vetch	200	0	100	0	100
Cushenbury oxytheca	30	0	30	0	30
Lane Mountain milk-vetch	2,000	0	2,000	0	2,000
Pierson's milk-vetch	400	0	0	400	400
Peninsular Bighorn sheep	40,000	36,000	0	300	36,300

IV.7.3.3.5 Impacts Outside of Plan Area

IV.7.3.3.5.1 Impacts of Transmission Out of Plan Area

The impacts of Out of Plan Area transmission on biological resources would be the same under all alternatives. These impacts are as described for the No Action Alternative in Section IV.7.3.1.6.1 (Impacts of Transmission Out of Plan Area in No Action Alternative).

IV.7.3.3.5.2 Impacts of BLM LUPA Decisions Outside of Plan Area

Natural Communities and Other Land Covers

There are 1,057,874 acres of natural communities in BLM LUPA lands outside the plan area. Of these, 138,260 acres would be proposed NLCS lands and 209,408 would be existing and proposed ACECs, for a total of 266,912 acres (accounting for overlapping designations) of natural communities in BLM LUPA conservation under Alternative 1.

Table IV.7-150
Estimated Acres of Natural Communities in BLM LUPA Outside of Plan Area – Alternative 1

Natural Communities	Natural Communities within BLM LUPA Lands Outside Plan Area (acres)	BLM LUPA Designation†		Total Natural Communities in BLM LUPA Conservation (acres)
		Proposed NLCS (acres)	*Existing and Proposed ACECs (acres)*	
Dune/Rocky, Barren, and Un-vegetated Communities				
Barren	23,402	237	2,841	2,870
Forest/Woodland Communities				
Closed-Cone Pine-Cypress	287	0	231	231
Jeffrey Pine	27	0	0	0
Juniper	31,590	474	6,963	6,963
Montane Hardwood	282	0	0	0
Pinyon-Juniper	73,444	7,745	8,507	9,578
Ponderosa Pine	1,445	0	0	0
Sierran Mixed Conifer	120	0	0	0
Subalpine Conifer	189	0	0	0
Grassland Communities				
Annual Grassland	6,353	0	0	0
Riparian/Wetland Communities				
Desert Riparian	205	2	205	205
Desert Wash	22,414	2,255	9,106	9,140
Freshwater Emergent Wetland	952	0	0	0
Lacustrine	99	0	19	19
Scrub and Chaparral Communities				
Alkali Desert Scrub	189,771	23,626	9,243	29,128
Chamise-Redshank Chaparral	8,317	2,279	4,117	5,461
Coastal Scrub	12	0	0	0
Desert Scrub	572,907	82,784	154,788	178,574
Desert Succulent Shrub	35,115	2,627	957	3,311
Joshua Tree	21,034	2,091	2,135	2,820
Low Sage	3,035	2,994	895	2,998
Mixed Chaparral	12,821	2,895	5,465	7,209
Sagebrush	48,566	7,988	3,673	8,142

Table IV.7-150
Estimated Acres of Natural Communities in BLM LUPA Outside of Plan Area – Alternative 1

Natural Communities	Natural Communities within BLM LUPA Lands Outside Plan Area (acres)	BLM LUPA Designation†		Total Natural Communities in BLM LUPA Conservation (acres)
		Proposed NLCS (acres)	*Existing and Proposed ACECs (acres)*	
Other Land Covers				
Cropland	3,617	0	0	0
Irrigated Hayfield	421	0	0	0
Urban	1,449	263	263	263
Total	**1,057,874**	**138,260**	**209,408**	**266,912**

Source: State of California GAP GIS data for vegetation classifications (CDFG 1998).

Special-Status Species

Many special-status species are known to occur within proposed or existing conservation areas within the BLM LUPA lands outside of the Plan Area. See Table IV.7-151 below for the list of special-status species within conservation areas. Refer to Table IV.7-150 above to see the natural communities present within the conservation areas that provide habitat for these species. Table IV.7-50 provides a cross-walk for the special-status species and the natural communities that provide habitat for these species.

In order to analyze how the preservation and conservation of the BLM LUPA lands outside of the Plan Area will affect the special-status species listed below, the preferred BLM LUPA conservation land boundaries within the CDCA but outside of the DRECP plan area were applied to the species' occurrence data available from CNDDB. Based on this analysis, Alternative 1 is expected to beneficially affect the 93 species shown in Table IV.7-151 that are known to occur within the NLCS and ACECs on BLM LUPA lands outside of the Plan Area, and the natural communities that provide habitat for these species shown in Table IV.7-150 above. Under Alternative 1, 59 species, dominated by plant species, are not present within existing and proposed BLM LUPA conservation lands.

Table IV.7-151
Special-Status Species Occurring in BLM LUPA Outside of Plan Area – Alternative 1

Special-Status Species Present	Federal Status[1]	State Status[2]	Present in BLM LUPA Conservation Lands (Proposed NLCS and Existing and Proposed ACECs)
Amphibians/Reptiles			
Agassiz's desert tortoise	FT	ST	Y
arroyo toad	FE	CSC	Y
barefoot gecko	BLM	ST	Y
coast horned lizard	-	CSC	Y
Coachella fringe-toed lizard	FE	SC	Y
Couch's spadefoot	BLM	CSC	N
flat-tailed horned lizard	BLM, FS	CSC	Y
rosy boa	BLM, FS	-	Y
Sierra Madre yellow-legged frog	FE	SC, CSC	Y
Fish			
desert pupfish	FE	SE	Y
Mohave tui chub	FE	SE	Y
Birds			
burrowing owl	-	CSC	Y
California black rail	BLM, BCC	ST	Y
Crissal thrasher	BLM, BCC	CSC	N
gray vireo	BLM, BCC	CSC	N
golden eagle	BGEPA	FP	Y
Inyo California towhee	FT	SE	Y
Le Conte's thrasher	BLM	CSC	Y
least Bell's vireo	FE	SE	N
loggerhead shrike	BCC	CSC	N
long-eared owl	BLM	CSC	Y
prairie falcon	BCC	-	Y
Swainson's hawk	BLM	ST	N
southwestern willow flycatcher	FE	SE	Y
vermilion flycatcher	-	CSC	N
western snowy plover	FT	CSC	Y
yellow warbler	BCC	CSC	Y
Yuma clapper-rail	FE, BCC	ST, FP	Y
Mammals			
American badger	-	CSC	Y

Table IV.7-151
Special-Status Species Occurring in BLM LUPA Outside of Plan Area – Alternative 1

Special-Status Species Present	Federal Status[1]	State Status[2]	Present in BLM LUPA Conservation Lands (Proposed NLCS and Existing and Proposed ACECs)
big free-tailed bat	-	CSC	N
hoary bat	-	WBWG	Y
long-eared myotis	BLM	-	N
Mojave ground squirrel	-	ST	Y
Nelson's bighorn sheep	BLM	-	Y
Palm Springs pocket mouse	BLM	CSC	Y
pallid bat	BLM	CSC	Y
Peninsular bighorn sheep	FE, BLM	ST, FP	Y
pocketed free-tailed bat	-	CSC	N
spotted bat	BLM	CSC	Y
Townsend's big-eared bat	BLM	CSC	Y
Western mastiff bat	BLM	CSC	N
Western small-footed myotis	BLM	-	Y
western yellow bat	-	CSC	N
Plants			
Abrams' spurge	-	(CRPR 2.2)	N
Amargosa beardtongue	BLM	(CRPR 1B.3)	Y
annual rock-nettle	-	(CRPR 2.2)	Y
Arizona pholistoma	-	(CRPR 2.3)	Y
Arizona spurge	-	(CRPR 2.3)	Y
Ash Meadows buckwheat	-	(CRPR 2.3)	N
Bailey's greasewood	-	(CRPR 2.3)	Y
Barneby's phacelia	-	(CRPR 2.3)	N
black bog-rush	-	(CRPR 2.2)	N
bristly scaleseed	-	(CRPR 2.3)	N
brown turbans	-	(CRPR 2.3)	Y
California ayenia	-	(CRPR 2.3)	N
California satintail	-	(CRPR 2.1)	Y
California saw-grass	-	(CRPR 2.2)	Y
chaparral sand-verbena	-	(CRPR 1B.1)	Y
Charlotte's phacelia	BLM	(CRPR 1B.2)	Y
Chimney Creek nemacladus	-	(CRPR 1B.2)	N
Coachella Valley milk-vetch	FE	(CRPR 1B.2)	N

Table IV.7-151
Special-Status Species Occurring in BLM LUPA Outside of Plan Area – Alternative 1

Special-Status Species Present	Federal Status[1]	State Status[2]	Present in BLM LUPA Conservation Lands (Proposed NLCS and Existing and Proposed ACECs)
Cove's cassia	-	(CRPR 2.2)	Y
creamy blazing star	-	(CRPR 1B.3)	Y
curly herissantia	-	(CRPR 2.3)	Y
Cushenbury buckwheat	FE	(CRPR 1B.1)	Y
Cushenbury oxytheca	FE	(CRPR 1B.1)	Y
Death Valley sandpaper-plant	-	(CRPR 1B.2)	N
Dedecker's clover	-	(CRPR 1B.3)	N
desert beauty	-	(CRPR 2.3)	N
desert spike-moss	-	(CRPR 2.2)	Y
dwarf germander	-	(CRPR 2.2)	N
Emory's crucifixion-thorn	-	(CRPR 2.2)	N
forked buckwheat	-	(CRPR 1B.2)	N
Geyer's milk-vetch	-	(CRPR 2.2)	N
Gilman's buckwheat	-	(CRPR 1B.3)	N
Gilman's cymopterus	-	(CRPR 2.3)	N
Gilman's goldenbush	-	(CRPR 1B.3)	N
glandular ditaxis	-	(CRPR 2.2)	N
Greene's rabbitbrush	-	(CRPR 2.3)	N
hairy stickleaf	-	(CRPR 2.3)	Y
Hall's daisy	-	(CRPR 1B.3)	N
Harwood's milk-vetch	-	(CRPR 2.2)	Y
Hoffmann's buckwheat	-	(CRPR 1B.3)	Y
Holmgren's lupine	-	(CRPR 2.3)	N
Inflated Cima milk-vetch	-	(CRPR 1B.3)	Y
intermontane lupine	-	(CRPR 2.3)	N
Inyo blazing star	-	(CRPR 1B.3)	Y
Inyo County star-tulip	-	(CRPR 1B.1)	N
Inyo rock daisy	-	(CRPR 1B.2)	Y
jackass-clover	-	(CRPR 2.2)	Y
Jacumba milk-vetch	-	(CRPR 1B.2)	N
July gold	-	(CRPR 1B.3)	N
Kelso Creek monkeyflower	BLM	(CRPR 1B.2)	Y
Kern Plateau bird's-beak	-	(CRPR 1B.3)	N

Table IV.7-151
Special-Status Species Occurring in BLM LUPA Outside of Plan Area – Alternative 1

Special-Status Species Present	Federal Status[1]	State Status[2]	Present in BLM LUPA Conservation Lands (Proposed NLCS and Existing and Proposed ACECs)
Kern River evening-primrose	-	(CRPR 1B.3)	Y
King's eyelash grass	-	(CRPR 2.3)	Y
knotted rush	-	(CRPR 2.3)	N
Lancaster milk-vetch	-	(CRPR 1B.1)	N
Las Animas colubrina	-	(CRPR 2.3)	Y
Latimer's woodland-gilia	-	(CRPR 1B.2)	Y
little-leaf elephant tree	-	(CRPR 2.3)	N
long-stem evening-primrose	-	(CRPR 2.2)	N
Mexican hulsea	-	(CRPR 2.3)	Y
Mormon needle grass	-	(CRPR 2.3)	N
Mountain Springs bush lupine	-	(CRPR 1B.3)	Y
Muir's tarplant	-	(CRPR 1B.3)	N
Nevada oryctes	-	(CRPR 2.1)	Y
Nine Mile Canyon phacelia	-	(CRPR 1B.2)	Y
Orcutt's linanthus	-	(CRPR 1B.3)	Y
Orcutt's woody-aster	-	(CRPR 1B.2)	Y
Orocopia sage	BLM	(CRPR 1B.3)	Y
Owen's Valley checkerbloom	BLM	SE (CRPR 1B.1)	Y
Owens Peak lomatium	-	(CRPR 1B.3)	N
Palmer's mariposa-lily	-	(CRPR 1B.2)	N
Panamint daisy	-	(CRPR 1B.2)	Y
Panamint dudleya	-	(CRPR 1B.3)	Y
Panamint Mountains buckwheat	-	(CRPR 1B.3)	Y
Panamint Mountains lupine	-	(CRPR 1B.2)	Y
Panamint rock-goldenrod	-	(CRPR 2.3)	Y
Parish's daisy	FT	(CRPR 1B.1)	Y
Parish's desert-thorn	-	(CRPR 2.3)	Y
Parry's monkeyflower	-	(CRPR 2.3)	N
Parry's spineflower	-	(CRPR 1B.1)	Y
Pierson's milk-vetch	FT	SE	N
pink fairy-duster	-	(CRPR 2.3)	Y
Pinyon Mesa buckwheat	-	(CRPR 1B.3)	Y
pinyon rockcress	-	(CRPR 2.3)	Y

Table IV.7-151
Special-Status Species Occurring in BLM LUPA Outside of Plan Area – Alternative 1

Special-Status Species Present	Federal Status[1]	State Status[2]	Present in BLM LUPA Conservation Lands (Proposed NLCS and Existing and Proposed ACECs)
prairie wedge grass	-	(CRPR 2.2)	Y
pygmy lotus	-	(CRPR 1B.3)	Y
Ripley's aliciella	-	(CRPR 2.3)	Y
Robison's monardella	-	(CRPR 1B.3)	Y
Robbins' nemacladus	-	(CRPR 1B.2)	N
San Bernardino aster	-	(CRPR 1B.2)	Y
San Bernardino milk-vetch	-	(CRPR 1B.2)	Y
San Diego button-celery	FE	SE, (CRPR 1B.1)	Y
sanicle cymopterus	-	(CRPR 1B.2)	N
Santa Rosa Mountains leptosiphon	-	(CRPR 1B.3)	N
Shockley's milk-vetch	-	(CRPR 2.2)	N
Shockley's rockcress	-	(CRPR 2.2)	Y
slender cottonheads	-	(CRPR 2.2)	N
slender-leaved ipomopsis	-	(CRPR 2.3)	Y
southern jewel-flower	-	(CRPR 1B.3)	N
Spanish needle onion	BLM	(CRPR 1B.3)	N
spear-leaf matelea	-	(CRPR 2.3)	Y
spiny-hair blazing star	-	(CRPR 2.1)	Y
sticky geraea	-	(CRPR 2.3)	Y
sweet-smelling monardella	-	(CRPR 1B.3)	N
triple –ribbed milk-vetch	FE	(CRPR 1B.2)	Y
Wheeler's dune-broom	-	(CRPR 2.2)	N
white-bracted spineflower	-	(CRPR 1B.2)	Y
Wildrose Canyon buckwheat	-	(CRPR 1B.3)	Y
yellow ivesia	-	(CRPR 2.3)	N

Notes:
CRPR = California Rare Plant Rank; Y = yes, present; N = not present

[1] Federal Status – FE: Federally Endangered; FT: Federally Threatened; FD: Federally Delisted; FS: Forest Service Sensitive; BLM: Bureau Land Management Sensitive; BCC: Service Bird of Conservation Concern; BGEPA: Bald and Golden Eagle Protection Act.

[2] State Status – SE: California Endangered; ST: California Threatened; SC: California Candidate for listing; CSC: California Species of Concern; FP: Fully Protected; WBWG: Western Bat Working Group species. California Rare Plant Rank (CRPR, formerly known as the CNPS List) - CRPR 1B: Considered rare, threatened, or endangered in California and elsewhere; CRPR 2: Considered rare, threatened, or endangered in California, but more common elsewhere; CRPR 3: Plants which need more information; CRPR 4: Limited distribution – a watch list.

Critical Habitat for Special-status Species

Six Special-status Species have Critical Habitat within BLM Lands outside the Plan Area. Table IV.7-152 shows the total amount of Critical Habitat and the amount within each BLM land designation for each species. No Critical Habitat for the least Bell's vireo would occur within BLM Conservation Designation. The largest portion of Critical Habitat for the remaining species would be within Areas of Critical Environmental Concern, with additional amounts within National Conservation Lands, with both designations providing specific protections for biological resources. Critical Habitat for all species except Coachella Valley fringe-toed lizard and least Bell's vireo would occur within Special Recreation Management Areas, which would also be managed to protect Critical Habitat.

Table IV.7-152
Critical Habitat Within BLM LUPA Conservation Designations for Special-Status Species Outside the Plan Area – Alternative 1

Common Name	Acres of Critical Habitat within BLM LUPA Lands	NLCS (acres)	ACEC (acres)	SRMA (acres)	Total[1] in BLM Designations
Coachella Valley milk-vetch	10,000	400	500	1,000	1,900
Inyo California towhee	2,000	10	800	500	1,310
Peninsular Bighorn sheep	317,000	400	9,000	200	9,600
Coachella Valley fringe-toed lizard	12,000	800	2,000	0	2,800
Desert tortoise	173,000	12000	99,000	55,000	166,000
Least Bell's vireo	600	0	0	0	0

[1] Includes overlapping designations

Landscape Habitat Linkages and Wildlife Movement Corridors

As detailed in Vol. III.7.13.2.4, Landscape Habitat Linkages and Wildlife Movement Corridors, there are important linkages and corridors North of the Plan Area within the Owens Valley, and Inyo Mountains, and Southwest of the Plan Area within and adjacent to the Coachella Valley. The NCLS lands and ACECs proposed for Alternative 1 offer protection at critical locations within these corridors, providing a benefit to Landscape Habitat Linkages and Wildlife Movement Corridors outside of the Plan Area.

IV.7.3.3.6 CEQA Significance Determination for Alternative 1

Impact BR-1: Siting, construction, decommissioning, and operational activities would result in loss of native vegetation.

Alternative 1 would result in loss of native vegetation that would be an adverse impact to natural communities and the species these communities support. These impacts would be concentrated in the Cadiz Valley and Chocolate Mountains, Pinto Lucerne Valley and Eastern Slopes, and West Mojave and Eastern Slopes subareas and would predominantly impact desert scrubs, wetlands, grasslands, and desert outcrop and badlands. The adverse effects of the loss of native vegetation would be avoided and minimized through the implementation of avoidance and minimization CMAs and compensation CMAs established to offset the impacts of Covered Activities. These CMAs would contribute to the overall DRECP conservation strategy, which includes conservation within Reserve Design Lands and a coordinated Monitoring and Adaptive Management Program. Implementation of the CMAs as part of the overall DRECP conservation strategy, plus implementation of Mitigation Measure BR-1a for rare natural communities, would reduce the adverse effects from the loss of native vegetation to a less than significant impact with mitigation.

Impact BR-2: Siting, construction, decommissioning, and operational activities would result in adverse effects to jurisdictional waters and wetlands.

Alternative 1 would result in adverse effects to jurisdictional waters and wetlands. These impacts would occur in saltbush scrub and playa natural communities determined to be jurisdictional and open water areas of the Salton Sea. The adverse effects to jurisdictional waters and wetlands would be avoided and minimized through the implementation existing applicable laws and regulations, through implementation of avoidance and minimization CMAs, and through compensation CMAs established to offset the impacts of Covered Activities. These CMAs would contribute to the overall DRECP conservation strategy, which includes conservation within Reserve Design Lands and a coordinated Monitoring and Adaptive Management Program. Implementation of the CMAs as part of the overall DRECP conservation strategy would reduce the adverse effects to jurisdictional waters and wetlands to a less than significant impact.

Impact BR-3: Siting, construction, decommissioning, and operational activities would result in degradation of vegetation.

Alternative 1 would result in degradation of vegetation that would be an adverse impact to natural communities and the species these communities support. These impacts would be concentrated in the Cadiz Valley and Chocolate Mountains, Pinto Lucerne Valley and Eastern Slopes, and West Mojave and Eastern Slopes subareas and would predominantly

impact desert scrubs, wetlands, grasslands, and desert outcrop and badlands. The adverse effects of vegetation degradation would be avoided and minimized through the implementation of avoidance and minimization CMAs and compensation CMAs established to offset the impacts of Covered Activities. These CMAs would contribute to the overall DRECP conservation strategy, which includes conservation within Reserve Design Lands and a coordinated Monitoring and Adaptive Management Program. Implementation of the CMAs as part of the overall DRECP conservation strategy would reduce the adverse effects of degradation of vegetation to a less than significant impact.

Impact BR-4: Siting, construction, decommissioning, and operational activities would result in loss of listed and sensitive plants; disturbance, injury, and mortality of listed and sensitive wildlife; and habitat for listed and sensitive plants and wildlife.

Alternative 1 would result in an adverse impact to listed and sensitive plants and wildlife and habitat for listed and sensitive plant and wildlife. These impacts would be concentrated in the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, Pinto Lucerne Valley and Eastern Slopes, and West Mojave and Eastern Slopes subareas. The adverse effects plant and wildlife species loss and habitat loss would be avoided and minimized through the implementation of avoidance and minimization CMAs and compensation CMAs established to offset the impacts of Covered Activities. These CMAs would contribute to the overall DRECP conservation strategy, which includes conservation within Reserve Design Lands and a coordinated Monitoring and Adaptive Management Program. Implementation of the CMAs as part of the overall DRECP conservation strategy would reduce the adverse effects from the loss plants and wildlife and their habitat to a less than significant impact.

Implementation of the CMAs as part of the overall DRECP conservation strategy would also reduce the adverse effects from the loss of plant and wildlife Non-Covered Species and their habitat to a less than significant impact with mitigation.

Impact BR-5: Siting, construction, decommissioning, and operational activities could result in loss of nesting birds (violation of the federal Migratory Bird Treaty Act and California Fish and Game Code Sections 3503, 3503.5, 3511, and 3513).

Alternative 1 has the potential to result in an adverse impact resulting from the loss of nesting birds. These impacts have the potential to occur anywhere Covered Activities are implemented. This potential adverse would be avoided and minimized through the implementation of avoidance and minimization CMAs developed to comply with existing applicable laws and regulations related to nesting birds. Implementation of the CMAs would reduce the potential adverse effects of the loss of nesting birds to a less than significant impact.

Impact BR-6: Siting, construction, decommissioning, and operational activities would adversely affect habitat linkages and wildlife movement corridors, the movement of fish, and native wildlife nursery sites.

Alternative 1 would result in adverse impacts to habitat linkages and wildlife movement corridors. These impacts to habitat linkages and movement of migratory birds would be concentrated in the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, Pinto Lucerne Valley and Eastern Slopes, and West Mojave and Eastern Slopes subareas. The potential adverse effects to habitat linkages and wildlife movement would avoided and minimized through the implementation of the DRECP conservation strategy, including the reserve design envelope and the Monitoring and Adaptive Management Program. Additionally, impacts of habitat fragmentation and population isolation would be avoided and minimized through requiring renewable energy development to occur within DFAs and through the implementation of avoidance and minimization CMAs and compensation CMAs established to offset the impacts of Covered Activities. Implementation of the CMAs as part of the overall DRECP conservation strategy would reduce the adverse effects on habitat linkages and wildlife movement to a less than significant impact.

Impact BR-7: Siting, construction, decommissioning, and operational activities would result in habitat fragmentation and isolation of populations of listed and sensitive plants and wildlife.

Alternative 1 would have the potential to result in adverse impacts of habitat fragmentation and population isolation. The potential adverse effects of habitat fragmentation and population isolation would avoided and minimized through the implementation of the DRECP conservation strategy, including the reserve design envelope and the Monitoring and Adaptive Management Program. Additionally, impacts of habitat fragmentation and population isolation would be avoided and minimized through requiring renewable energy development to occur within DFAs and through the implementation of avoidance and minimization CMAs and compensation CMAs established to offset the impacts of Covered Activities. Implementation of the DRECP and the CMAs as part of the overall DRECP conservation strategy would reduce the adverse effects of habitat fragmentation and population isolation to a less than significant impact.

Impact BR-8: Construction of generation facilities or transmission lines would result in increased predation of listed and sensitive wildlife species.

Alternative 1 would result in an increase in predator populations in the Plan Area, which would adversely affect susceptible Covered Species. As part of the overall DRECP conservation strategy, implementation of a Common Raven Management Plan (AM-PW-6) would reduce the adverse effects to Covered Species to a less than significant impact.

Alternative 1 would result in an increase in predator populations in the Plan Area, which would adversely affect susceptible Covered Species. As part of the overall DRECP conservation, strategy implementation of a Common Raven management actions (AM-PW-6) would reduce the adverse effects to Non-Covered Species to a less than significant impact.

Impact BR-9: Operational activities would result in avian and bat injury and mortality from collisions, thermal flux or electrocution at generation and transmission facilities.

Alternative 1 would result in loss of avian and bat Covered Species that would be an adverse impact to avian and bat populations. These impacts would be concentrated in the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, Pinto Lucerne Valley and Eastern Slopes, and West Mojave and Eastern Slopes subareas. The adverse effects of avian and bat injury and mortality would be avoided and minimized through the implementation of avoidance and minimization CMAs and compensation CMAs established to offset the impacts of Covered Activities. These CMAs would contribute to the overall DRECP conservation strategy, which includes conservation within Reserve Design Lands and a coordinated Monitoring and Adaptive Management Program. Implementation of the CMAs as part of the overall DRECP conservation strategy would reduce the adverse effects to a less than significant impact.

The level of impact on avian and bat Non-Covered Species would be as discussed for the Covered Species.

IV.7.3.3.7 Comparison of Alternative 1 with Preferred Alternative

Chapter IV.27 presents a comparison of all action alternatives and the No Action Alternative across all disciplines. This section summarizes the comparison of Alternative 1 with the Preferred Alternative.

IV.7.3.3.7.1 Alternative 1 Compared with Preferred Alternative for Plan-Wide DRECP

Alternative 1 would concentrate renewable energy development into approximately 1 million acres of DFAs (5% of the Plan Area) as compared to the approximately 2 million acres of DFAs (10% of the Plan Area) under the Preferred Alternative. Under Alternative 1, 93% of the DFAs are characterized by low or moderately low terrestrial intactness as compared to the 87% of the DFAs in the Preferred Alternative. Alternative 1 and the Preferred Alternative would result in roughly equivalent conservation acreage within Reserve Design Lands; however, the BLM LUPA conservation designations vary considerably between these alternatives. Alternative 1 BLM LUPA conservation designations would include 59% ACEC designations, 28% NLCS designations, and 13% wildlife allocation designations, whereas the Preferred Alternative BLM LUPA conservation designations would include 32% ACEC designations, 65% NLCS designations, and 3%

wildlife allocation designations. The following provides a comparative analysis for specific biological resources.

Impacts to Natural Communities

A summary of the differences between effects under this Alternative and the Preferred Alternative is provided below.

California forest and woodlands

Overall, approximately 40 acres of California forest and woodlands would be impacted under Alternative 1, compared to 100 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are fewer impacts from transmission in the Pinto Lucerne Valley and Eastern Slopes subarea, but much fewer impacts from solar and wind development in the West Mojave and Eastern Slopes subarea.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 1,000 acres of chaparral and coastal scrubs would be impacted under Alternative 1, compared to 2,000 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts from solar development in the Pinto Lucerne Valley and Eastern Slopes subarea, but much fewer impacts from solar and wind development in the West Mojave and Eastern Slopes subarea.

Desert conifer woodlands

Overall, approximately 1,000 acres of desert conifer woodlands would be impacted under both Alternative 1 and the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts from solar development in the Pinto Lucerne Valley and Eastern Slopes subarea, but fewer impacts from solar and wind in the West Mojave and Eastern Slopes subarea.

Desert outcrop and badlands

Overall, approximately 5,000 acres of desert outcrop and badlands would be impacted under Alternative 1, compared to 10,000 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts in the Owens River Valley, Pinto Lucerne Valley and Eastern Slopes, Providence and Bullion Mountains, and West Mojave and Eastern Slopes subareas, mostly from solar and transmission. However, there are much fewer impacts from solar development in the Cadiz Valley and Chocolate Mountains subarea. There are also fewer impacts in the Mojave and Silurian Valley subarea.

Desert scrubs

Overall, approximately 85,000 acres of desert scrubs would be impacted under Alternative 1, compared to 92,000 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are actually greater impacts from solar development and/or transmission in the Mojave and Silurian Valley, Owens River Valley, Pinto Lucerne Valley and Eastern Slopes, Providence and Bullion Mountains, and West Mojave and Eastern Slopes subareas. However, total impacts are fewer under this Alternative primarily because there are fewer impacts from solar in the Cadiz Valley and Chocolate Mountains subarea. There are also fewer impacts in the Imperial Borrego Valley subarea.

Dunes

Like the Preferred Alternative, impacts to dune communities would be minimized under Alternative 1 since application of the CMAs would require that dune communities be avoided to the maximum extent feasible in DFAs. In addition, CMA application would prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

Grasslands

Overall, approximately 6,000 acres of grasslands would be impacted under both Alternative 1 and the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts from solar development and/or transmission in the Cadiz Valley and Chocolate Mountains, Mojave and Silurian Valley, and Pinto Lucerne Valley and Eastern Slopes subareas. However, there are fewer impacts to grasslands from solar, wind, and transmission in the West Mojave and Eastern Slopes subarea under Alternative 1.

Riparian

Like the Preferred Alternative, impacts to riparian communities would be avoided under Alternative 1 since application of the CMAs would require that riparian communities be avoided to the maximum extent feasible in DFAs. In addition, setbacks from riparian communities would be required that range from 200 feet for Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub to 0.25 mile for Southwestern North American riparian evergreen and deciduous woodland and Southwestern North American riparian/wash scrub.

Wetlands

Overall, approximately 11,000 acres of wetlands would be impacted under Alternative 1, compared to 10,000 acres under the Preferred Alternative, making this the only general

community with greater impacts under Alternative 1 than under the Preferred Alternative. Like the Preferred Alternative, impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep would not occur under Alternative 1 since application of the CMAs would require that these communities be avoided to the maximum extent feasible in DFAs, including a 0.25-mile setback.

Compared to the Preferred Alternative, there are fewer impacts in the Cadiz Valley and Chocolate Mountains and West Mojave and Eastern Slopes subareas. However, there are much more impacts to open water at the Salton Sea in the Imperial Borrego Valley subarea under Alternative 1, mostly from solar development. All of the other remaining subareas with impacts also have greater impacts under Alternative 1 compared to the Preferred Alternative.

Conservation of Natural Communities

A summary of the differences between conservation under this Alternative and the Preferred Alternative is provided below.

California forest and woodlands

Overall, approximately 63,000 acres (42%) of California forest and woodlands would be conserved under Alternative 1, compared to 62,000 acres (41%) under the Preferred Alternative. Compared to the Preferred Alternative, there are more California forest and woodland areas conserved in the West Mojave and Eastern Slopes subarea.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 32,000 acres (30%) of chaparral and coastal scrubs would be conserved under Alternative 1, compared to 31,000 acres (28%) under the Preferred Alternative. Compared to the Preferred Alternative, there is more conserved acreage, mostly from Conservation Planning Areas, in the West Mojave and Eastern Slopes subarea.

Desert conifer woodlands

Overall, approximately 187,000 acres (65%) of desert conifer woodlands would be conserved under Alternative 1, compared to 186,000 acres (65%) under the Preferred Alternative. Compared to the Preferred Alternative, there is more conservation, mostly from Conservation Planning Areas, in the West Mojave and Eastern Slopes subarea.

Desert outcrop and badlands

Overall, approximately 1,299,000 acres (80%) of desert outcrop and badlands would be conserved under Alternative 1, compared to 1,295,000 acres (80%) under the Preferred Alternative. Although conservation between these subareas is similar overall, the distribution of conservation varies. Compared to the Preferred Alternative, there is greater conservation of this general community in the Cadiz Valley and Chocolate Mountains and Mojave and Silurian Valley subareas, with the greatest difference in the Cadiz Valley and Chocolate Mountains subarea. There is less conserved acreage in the Pinto Lucerne Valley and Eastern Slopes, Piute Valley and Sacramento Mountains, and Providence and Bullion Mountains subareas, with the greatest difference in the Piute Valley and Sacramento Mountains subarea.

Desert scrubs

Overall, approximately 9,690,000 acres (73%) of desert scrubs would be conserved under Alternative 1, compared to 9,729,000 acres (74%) under the Preferred Alternative. Half of the subareas in the Plan Area have greater conservation of desert scrubs under Alternative 1 compared to the Preferred Alternative. The largest difference being in the Cadiz Valley and Chocolate Mountains subarea. but there is also more conservation of desert scrubs in the Imperial Borrego Valley, Kingston and Funeral Mountains, and Providence and Bullion Mountains, and West Mojave and Eastern Slopes subareas. Of the remaining subareas with less conservation under Alternative 1, the Panamint Death Valley subarea has the largest difference between the two alternatives.

Dunes

Overall, approximately 214,000 acres (76%) of dunes would be conserved under Alternative 1, compared to 209,000 acres (74%) under the Preferred Alternative. The most substantial differences between the alternatives are more BLM LUPA conservation designations in the Cadiz Valley and Chocolate Mountains subarea, more Conservation Planning Areas in the Imperial Borrego Valley subarea, and fewer BLM LUPA conservation designations in the Mojave and Silurian Valley subarea under Alternative 1 compared to the Preferred Alternative.

In addition to conservation, impacts to dune communities would be minimized under both alternatives since application of the CMAs would require that dune communities be avoided to the maximum extent feasible in DFAs. In addition, CMA application would prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

Grasslands

Overall, approximately 57,000 acres (24%) of grasslands would be conserved under Alternative 1, compared to 54,000 acres (22%) under the Preferred Alternative. Compared to the Preferred Alternative, there is more conservation of grasslands primarily in BLM LUPA conservation designations in the Cadiz Valley and Chocolate Mountains and West Mojave and Eastern Slopes subareas, and in Conservation Planning Areas in the West Mojave and Eastern Slopes subarea under Alternative 1.

Riparian

Overall, approximately 679,000 acres (68%) of riparian communities would be conserved under Alternative 1, compared to 715,000 acres (72%) under the Preferred Alternative. The most substantial difference between the alternatives is much less conservation in BLM LUPA conservation designations in the Imperial Borrego Valley subarea. The only subareas with greater conservation under Alternative 1 are the Cadiz Valley and Chocolate Mountains and Kingston and Funeral Mountains subareas.

In addition to conservation, impacts to riparian communities would be avoided under both alternatives since application of the CMAs would require that riparian communities be avoided to the maximum extent feasible in DFAs. In addition, setbacks from riparian communities would be required that range from 200 feet for Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub to 0.25 mile for Southwestern North American riparian evergreen and deciduous woodland and Southwestern North American riparian/wash scrub.

Wetlands

Overall, approximately 454,000 acres (52%) of wetlands would be conserved under Alternative 1, compared to 433,000 acres (50%) under the Preferred Alternative. There is more conserved acreage of wetlands primarily in the West Mojave and Eastern Slopes subarea, but also in the Cadiz Valley and Chocolate Mountains and Providence and Bullion Mountains subareas. All of the other subareas have the same or fewer conserved acres of wetland communities.

In addition to conservation, impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep would not occur under both alternatives since application of the CMAs would require that these communities be avoided to the maximum extent feasible in DFAs, including a 0.25-mile setback.

Impacts to Covered Species

Overall, there are more impacts to suitable habitat for Covered Species under Alternative 1 compared to the Preferred Alternative. Less suitable habitat for Covered Species would impacted under Alternative 1 in three subareas: Cadiz Valley and Chocolate Mountains, Kingston and Funeral Mountains (no impacts under Alternative 1), and West Mojave and Eastern Slopes subareas with the greatest difference in the Cadiz Valley and Chocolate Mountains subarea.

More suitable habitat for Covered Species would be impacted under Alternative 1 compared to the Preferred Alternative for one of the four amphibian/reptile species—Agassiz's desert tortoise. However, Alternative 1 would result in about half as much impact to desert tortoise important areas as compared with the Preferred Alternative.

Most of the covered bird species have greater impacts to their suitable habitat under Alternative 1 including some birds associated with riparian/wetland areas (i.e., California black rail, least Bell's vireo, southwestern willow flycatcher, western yellow-billed cuckoo) and birds associated with other habitats (Bendire's thrasher, burrowing owl, greater sandhill crane, mountain plover, Swainson's hawk). Suitable habitat for all of the covered fish species except Mohave tui chub, which would not be impacted under either alternative, would have greater impacts under Alternative 1, but the impacts would not differ by more than about 100 acres for any of the species. Suitable habitat for bighorn sheep (mountain habitat) and Mohave ground squirrel would be impacted more under Alternative 1 than under the Preferred Alternative. Impacts to Mohave ground squired important areas for Alternative 1 are also higher than under the Preferred Alternative. Four of the ten covered plant species would have greater impacts under Alternative 1 compared to the Preferred Alternative, including Barstow woolly sunflower, Little San Bernardino Mountains linanthus, Owens Valley checkerbloom, and Parish's daisy. However, CMA application would further avoid and minimize impacts to suitable habitat for Covered Species under both alternatives as described in Section IV.7.3.3.1.1.

Impacts to Non-Covered Species

More suitable habitat for Non-Covered Species has the potential to be impacted under the Preferred Alternative compared to the Alternative 1 for all of the invertebrates evaluated. However, under both alternatives, application of CMAs and general siting design would further protect spring-, cave-, and dune-restricted species by avoiding renewable development in these habitats. More suitable habitat for Non-Covered Species could be impacted under the Preferred Alternative compared to Alternative 1 for the majority of the amphibian/reptile species. The majority of bird Non-Covered Species would have greater potential impacts to suitable habitat under Alternative 1 as compared to the Preferred

Alternative. Both of the fish Non-Covered species could potentially have greater impacts under the Preferred Alternative; however, implementation of CMAs would preclude development within habitat for the fish, thus further protecting these species under either Alternative. Greater potential impacts to suitable habitat for half of the mammal Non-Covered Species would occur under Alternative 1 as compared to the Preferred Alternative. A few of the plant Non-Covered Species could have greater potential impacts under Alternative 1 compared to the Preferred Alternative.

Conservation of Covered Species

Overall, there is greater conservation of Covered Species habitat under Alternative 1 compared to the Preferred Alternative. There is less conservation in BLM LUPA conservation designations under Alternative 1, but more conservation in Conservation Planning Areas. Compared to the Preferred Alternative there is greater conservation of suitable habitat for Covered Species in the Cadiz Valley and Eastern Slopes Kingston and Funeral Mountains, Providence and Bullion Mountains, and West Mojave and Eastern Slopes subareas under Alternative 1.

More suitable habitat for the following species would be conserved under Alternative 1 compared to the Preferred Alternative: Mojave fringe-toed lizard, Tehachapi slender salamander, flat-tailed horned lizard, desert pupfish, California condor, burrowing owl, Swainson's hawk, mountain plover, California black rail, tricolored blackbird, Yuma clapper rail, southwestern willow flycatcher, greater sandhill crane, Barstow woolly sunflower, Bakersfield cactus, Mojave tarplant, and alkali mariposa-lily. The same amount of suitable habitat would be conserved for triple-ribbed milk-vetch under both alternatives. For the remaining species, more suitable habitat would be conserved under Alternative 1.

In addition to conservation of suitable habitat for Covered Species, compensation CMAs would offset habitat loss for all Covered Species under both alternatives. CMAs also require avoidance and minimization of Covered Species in DFAs and CMAs would be applied in the reserve to benefit Covered Species.

Impacts to the Desert Linkage Network

Overall, fewer acres of the desert linkage network would be impacted under Alternative 1 compared to the Preferred Alternative. There are more DFAs under the Preferred Alternative compared to Alternative 1 in linkages in the Chuckwalla Valley and along McCoy Wash, along East Mesa, in the Barstow area, Lucerne Valley, and the Fremont Valley.

To avoid and minimize impacts to the desert linkage network beyond what is presented in Table IV.7-106, Covered Activities will be sited and designed to maintain the function of wildlife connectivity in the following linkage and connectivity areas: (1) across Interstate

10 centered on Wiley's Well Road to connect the Mule and McCoy mountains, (2) across Interstate 10 to connect the Chuckwalla and Palen mountains, (3) across Interstate 10 to connect the Chuckwalla Mountains to the Chuckwalla Valley east of Desert Center, and (4) the confluence of Milpitas Wash and Colorado River floodplain. In addition, the Riparian and Wetland Natural Communities and Covered Species CMAs will contribute to maintaining and promoting habitat connectivity and wildlife movement.

Conservation of the Desert Linkage Network

Overall, there is greater conservation of the desert linkage network under Alternative 1 compared to the Preferred Alternative. Some areas with more conservation under Alternative 1 compared to the Preferred Alternative include the linkage along East Mesa in the Imperial Borrego Valley, in the linkage from Palo Verde Mesa to the McCoy Mountains, and in the Lucerne Valley. In addition to conservation of the desert linkage network, CMAs provide for the avoidance and minimization of certain linkages in the DFAs.

Operational Impacts

Alternative 1 would result in an estimated 7,704 fewer bird collisions and 11,461 fewer bat collision with wind turbines than the Preferred Alternative. However, this would result in an additional 10,724 acres of solar development, with a proportional increase in the associated operational impacts. Additional development would occur in Imperial Borrego Valley, Owens Valley Pinto and Lucerne subareas, with an overall reduction in impacts in the Cadiz Valley and Chocolate Mountains subarea. Impacts from Transmission would be broadly similar.

Migratory Bird impacts across most of the plan area are likely to be lower because the overall reduction in wind impacts. However, greater impacts in Imperial Valley would reduce available foraging habitat for birds like the greater sandhill crane and burrowing owl. Further, the focus on agricultural and disturbed lands in the West Mojave and Eastern Slopes would result in increased impacts to burrowing owl and Swainson's hawk. For these species, Alternative 1 is likely to result in more impacts.

The operation of renewable energy would result in the degradation of vegetation through the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants as well as the disturbance of wildlife due to noise, predator avoidance behavior, and light and glare. Alternative 1 would result in slightly larger levels of terrestrial operational impacts when compared with the Preferred Alternative. Additionally, the distribution of vegetation degradation and wildlife disturbance as a result of operational impacts would be distributed differently under the Preferred Alternative and Alternative 1. The degradation of vegetation and

disturbance of wildlife during operations in Alternative 1 would be more heavily distributed in the Imperial Borrego Valley, Owens River Valley, and Pinto Lucerne Valley and Eastern Slopes subareas than in the Preferred Alternative. However, Alternative 1 would have fewer operational impacts in the Cadiz Valley and Chocolate Mountains subarea. Both the Preferred Alternative and Alternative 1 would direct renewable energy development to DFAs that are designed to minimize impacts to biological resources and both would implement CMAs to avoid, minimize, and compensate for operational impacts.

IV.7.3.3.7.2 Alternative 1 Compared with Preferred Alternative for the BLM Land Use Plan Amendment

Alternative 1 would concentrate renewable energy development into approximately 81,000 acres of DFAs on BLM-administered lands as compared to the approximately 367,000 acres of DFAs on BLM-administered lands under the Preferred Alternative. Alternative 1 and the Preferred Alternative would both designate approximately 4.9 million acres of BLM LUPA conservation designations on BLM-administered lands; however, Alternative 1 would include 1.5 million acres of NLCS, 2.8 million acres of ACEC, and nearly 600,000 acres of wildlife allocation as compared to the 3.5 million acres of NLCS, 1.4 million acres of ACEC, and over 18,000 acres of wildlife allocation under the Preferred Alternative. The following provides a comparative analysis for specific biological resources.

Impacts to Natural Communities

A summary of the differences between effects under this Alternative and the Preferred Alternative is provided below.

California forest and woodlands

Overall, approximately 40 acres of California forest and woodlands would be impacted under both Alternative 1 and the Preferred Alternative for the BLM LUPA. Compared to the Preferred Alternative, there are greater impacts from transmission in the Pinto Lucerne Valley and Eastern Slopes subarea, but no impacts in the West Mojave and Eastern Slopes subarea.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 200 acres of chaparral and coastal scrubs would be impacted under Alternative 1 for the BLM LUPA, compared to 300 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts from solar and transmission in the Pinto Lucerne Valley and Eastern Slopes subarea. There are fewer impacts from solar and wind development in the West Mojave and Eastern Slopes subarea.

Desert conifer woodlands

Overall, approximately 200 acres of desert conifer woodlands would be impacted under Alternative 1, compared to 400 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts from solar development in the Pinto Lucerne Valley and Eastern Slopes subarea, but no impacts in the West Mojave and Eastern Slopes subarea.

Desert outcrop and badlands

Overall, approximately 3,000 acres of desert outcrop and badlands would be impacted under Alternative 1 for the BLM LUPA, compared to 8,000 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts in the Owens River Valley, Providence and Bullion Mountains, and West Mojave and Eastern Slopes subareas, mostly from solar and transmission. However, there are much fewer impacts in the Cadiz Valley and Chocolate Mountains subarea and also fewer impacts in the Imperial Borrego Valley and Mojave and Silurian Valley subareas.

Desert scrubs

Overall, approximately 27,000 acres of desert scrubs would be impacted under Alternative 1 for the BLM LUPA, compared to 46,000 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are actually greater impacts in the Owens River Valley and Providence and Bullion Mountains subareas. However, total impacts are fewer under this Alternative primarily because there are fewer impacts from solar in the Cadiz Valley and Chocolate Mountains.

Dunes

Like the Preferred Alternative, impacts to dune communities would be minimized under Alternative 1 for the BLM LUPA since application of the CMAs would require that dune communities be avoided to the maximum extent feasible in DFAs. In addition, CMA application would prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

Grasslands

Overall, approximately 200 acres of grasslands would be impacted under Alternative 1 for the BLM LUPA, compared to 500 acres under the Preferred Alternative. Total impacts are fewer under this Alternative primarily because there are fewer impacts in the Cadiz Valley and Chocolate Mountains and West Mojave and Eastern Slopes subareas.

Riparian

Like the Preferred Alternative, impacts to riparian communities would be avoided under Alternative 1 for the BLM LUPA since application of the CMAs would require that riparian communities be avoided to the maximum extent feasible in DFAs. In addition, setbacks from riparian communities would be required that range from 200 feet for Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub to 0.25 mile for Southwestern North American riparian evergreen and deciduous woodland and Southwestern North American riparian/wash scrub.

Wetlands

Overall, approximately 200 acres of wetlands would be impacted under Alternative 1, compared to 4,000 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are fewer impacts in the all of the Plan Area's subareas, but the greatest differences are in the Cadiz Valley and Chocolate Mountains and West Mojave and Eastern Slopes subareas. Like the Preferred Alternative, impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep would not occur under Alternative 1 since application of the CMAs would require that these communities be avoided to the maximum extent feasible in DFAs, including a 0.25-mile setback.

Conservation of Natural Communities for the BLM LUPA

A summary of the differences between conservation under this Alternative and the Preferred Alternative is provided below.

California forest and woodlands

Overall, approximately 38,000 acres (86%) of California forest and woodlands would be conserved under both Alternative 1 and the Preferred Alternative. Compared to the Preferred Alternative, there is more conservation of California forest and woodlands in ACECs and less conservation in NLCS areas under Alternative 1.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 11,000 acres (62%) of chaparral and coastal scrubs would be conserved under both Alternative 1 and the Preferred Alternative for the BLM LUPA. Compared to the Preferred Alternative, there is less conserved acreage of chaparral and coastal scrubs in NLCS areas overall, but more conservation in wildlife allocations in the Pinto Lucerne and Eastern Slopes subarea.

Desert conifer woodlands

Overall, approximately 41,000 acres (83%) of desert conifer woodlands would be conserved under both Alternative 1 and the Preferred Alternative for the BLM LUPA. Compared to the Preferred Alternative, there is more conservation in ACECs and less conservation in NLCS areas.

Desert outcrop and badlands

Overall, approximately 1,022,000 acres (85%) of desert outcrop and badlands would be conserved under Alternative 1, compared to 1,017,000 acres (85%) under the Preferred Alternative for the BLM LUPA. Although conservation between these subareas is similar overall, the distribution of conservation varies. Compared to the Preferred Alternative, there is greater conservation of this general community in the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, and Mojave and Silurian Valley subareas, with the greatest difference in the Cadiz Valley and Chocolate Mountains subarea. There is less conserved acreage in the Piute Valley and Sacramento Mountains and Providence and Bullion Mountains subareas, with the greatest difference in the Piute Valley and Sacramento Mountains subarea.

Desert scrubs

Overall, approximately 5,805,000 acres (83%) of desert scrubs would be conserved under Alternative 1, compared to 5,835,000 acres (83%) under the Preferred Alternative for the BLM LUPA. Half of the subareas in the Plan Area have greater conservation of desert scrubs under Alternative 1 compared to the Preferred Alternative. The biggest difference is in the Cadiz Valley and Chocolate Mountains subarea, but there is also more conservation of desert scrubs in the Imperial Borrego Valley, Kingston and Funeral Mountains, Providence and Bullion Mountains, and West Mojave and Eastern Slopes subareas. Of the remaining subareas with less conservation under Alternative 1, the Panamint Death Valley subarea has the largest difference between the two alternatives.

Dunes

Overall, approximately 93,000 acres (73%) of dunes would be conserved under Alternative 1, compared to 89,000 acres (70%) under the Preferred Alternative for the BLM LUPA. The most substantial differences between the alternatives are more conservation in NLCS areas and wildlife allocations in the Cadiz Valley and Chocolate Mountains subarea.

In addition to conservation, impacts to dune communities would be minimized under both alternatives since application of the CMAs would require that dune communities be avoided to the maximum extent feasible in DFAs. In addition, CMA application would

prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

Grasslands

Overall, approximately 24,000 acres (84%) of grasslands would be conserved under Alternative 1, compared to 23,000 acres (80%) under the Preferred Alternative for the BLM LUPA. Compared to the Preferred Alternative, there is more conservation of grasslands in the Cadiz Valley and Chocolate Mountains subarea. Overall, there is less conservation of grasslands in NLCS areas and more in ACECs and wildlife allocations under Alternative 1.

Riparian

Overall, approximately 479,000 acres (74%) of dunes would be conserved under Alternative 1, compared to 515,000 acres (80%) under the Preferred Alternative for the BLM LUPA. The most substantial difference between the alternatives is much less conservation in BLM LUPA conservation designations in the Imperial Borrego Valley subarea. The only subarea with greater conservation under Alternative 1 is the Cadiz Valley and Chocolate Mountains subarea.

In addition to conservation, impacts to riparian communities would be avoided under both alternatives since application of the CMAs would require that riparian communities be avoided to the maximum extent feasible in DFAs. In addition, setbacks from riparian communities would be required that range from 200 feet for Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub to 0.25 mile for Southwestern North American riparian evergreen and deciduous woodland and Southwestern North American riparian/wash scrub.

Wetlands

Overall, approximately 204,000 acres (69%) of wetlands would be conserved under Alternative 1, compared to 184,000 acres (62%) under the Preferred Alternative. There is more conserved acreage of wetlands primarily in the West Mojave and Eastern Slopes, Cadiz Valley and Chocolate Mountains, and Providence and Bullion Mountains subareas. All of the other subareas have the same or fewer conserved acres of wetland communities. Overall, there are fewer conserved acres in NLCS areas and more conservation in ACECs and wildlife allocations.

In addition to conservation, impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep would not occur under both alternatives since

application of the CMAs would require that these communities be avoided to the maximum extent feasible in DFAs, including a 0.25-mile setback.

Impacts to Covered Species

Overall, there are fewer impacts to suitable habitat for Covered Species under Alternative 1 compared to the Preferred Alternative for the BLM LUPA. The only subareas where more suitable habitat for Covered Species would be impacted under Alternative 1 are the Owens River Valley, Providence and Bullion Mountains, and Pinto Lucerne and Eastern Slopes subareas. Less suitable habitat for Covered Species would be impacted under Alternative 1 compared to the Preferred Alternative except for the following species: western yellow-billed cuckoo, southwestern willow flycatcher, least Bell's vireo, Bendire's thrasher, bighorn sheep mountain habitat, Mohave ground squirrel, Owens pupfish, Owens tui chub, Owens Valley checkerbloom, alkali mariposa-lily, and Parish's daisy. However, CMA application would further avoid and minimize impacts to suitable habitat for Covered Species under both alternatives as described in Section IV.7.3.3.1.1.

Impacts to Non-Covered Species

More suitable habitat for Non-Covered Species has the potential to be impacted under the Preferred Alternative compared to the Alternative 1 for all of the invertebrates evaluated. However, under both alternatives, application of CMAs and general siting design will further protect spring-, cave-, and dune-restricted species by avoiding renewable development in these habitats. More suitable habitat for Non-Covered Species could be impacted under the Preferred Alternative compared to Alternative 1 for all amphibian/reptile species. All of the bird Non-Covered Species have greater potential impacts to suitable habitat under the Preferred Alternative as compared to Alternative 1. Both of the fish Non-Covered species could potentially have greater impacts under the Preferred Alternative; however, implementation of CMAs would preclude development within fish habitat, thus further protecting these species under either Alternative. Greater potential impacts to suitable habitat for the majority of mammal Non-Covered Species could occur under the Preferred Alternative as compared to Alternative 1. Only a few of the plant Non-Covered Species could have greater potential impacts under Alternative 1 as compared to the Preferred Alternative.

Conservation of Covered Species

Overall, there is slightly less conservation of Covered Species habitat under Alternative 1 compared to the Preferred Alternative. There is less conservation in NLCS areas under Alternative 1, but more conservation in ACECs and wildlife allocations. The only subarea with wildlife allocations under the Preferred Alternative is the West Mojave and Eastern Slopes subarea, but wildlife allocations are included in six of the subareas under Alternative 1. There

is greater conservation of Covered Species habitat in the Cadiz Valley and Chocolate Mountains, Kingston and Funeral Mountains, Providence and Bullion Mountains, and West Mojave and Eastern Slopes subareas under Alternative 1 compared to the Preferred Alternative. The greatest difference between alternatives among the remaining subareas would be in the Panamint Death Valley and Sacramento Mountains subarea.

More suitable habitat for the following species would be conserved under Alternative 1 compared to the Preferred Alternative: Mojave fringe-toed lizard, flat-tailed horned lizard, greater sandhill crane, mountain plover, southwestern willow flycatcher, Yuma clapper rail, California condor, Swainson's hawk, California black rail, burrowing owl, desert kit fox, Mohave ground squirrel, Parish's daisy, Bakersfield cactus, Mojave tarplant, Mojave monkeyflower, and Barstow woolly sunflower. Conservation of tricolored blackbird would only be minimally higher under Alternative 1. For the remaining species, more or the same suitable habitat would be conserved under the Preferred Alternative.

In addition to conservation of suitable habitat for Covered Species, compensation CMAs would offset habitat loss for all Covered Species under both alternatives. CMAs also require avoidance and minimization of Covered Species in DFAs and CMAs would be applied in the Reserve to benefit Covered Species.

Impacts to the Desert Linkage Network

Overall, fewer acres of the desert linkage network would be impacted under Alternative 1 compared to the Preferred Alternative for the BLM LUPA. There are more DFAs under the Preferred Alternative compared to Alternative 1 through linkages in the Chuckwalla Valley and along McCoy Wash, along East Mesa, in the Barstow area, Lucerne Valley, and Fremont Valley.

To avoid and minimize impacts to the desert linkage network beyond what is presented in Table IV.7-121, Covered Activities will be sited and designed to maintain the function of wildlife connectivity in the following linkage and connectivity areas: (1) across Interstate 10 centered on Wiley's Well Road to connect the Mule and McCoy mountains, (2) across Interstate 10 to connect the Chuckwalla and Palen mountains, (3) across Interstate 10 to connect the Chuckwalla Mountains to the Chuckwalla Valley east of Desert Center, and (4) the confluence of Milpitas Wash and Colorado River floodplain. In addition, the Riparian and Wetland Natural Communities and Covered Species CMAs will contribute to maintaining and promoting habitat connectivity and wildlife movement.

Conservation of the Desert Linkage Network

Overall, there is greater conservation of the desert linkage network under Alternative 1 compared to the Preferred Alternative for the BLM LUPA. Some areas with more conservation under Alternative 1 compared to the Preferred Alternative include the linkage

from Palo Verde Mesa to the McCoy Mountains and in the Lucerne Valley. In addition to conservation of the desert linkage network, CMAs provide for the avoidance and minimization of certain linkages in the DFAs.

Operational Impacts

Alternative 1 would result in an estimated 3,842 fewer bird collisions and 17,796 fewer bat collision with wind turbines than the Preferred Alternative. Solar development would be predominately concentrated on disturbed and agricultural lands, out of BLM jurisdiction. Consequently, the only BLM LUPA DFA within which greater impacts would occur would be the Rose Valley DFA in Owens Valley. Impacts from geothermal development and transmission development would be broadly similar.

The operation of renewable energy would result in the degradation of vegetation through the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants as well as the disturbance of wildlife due to noise, predator avoidance behavior, and light and glare. Alternative 1 would result in lower levels of terrestrial operational impacts on BLM Land when compared with the Preferred Alternative. Additionally, the distribution of vegetation degradation and wildlife disturbance as a result of operational impacts would be distributed differently under the Preferred Alternative and Alternative 1. The degradation of vegetation and disturbance of wildlife during operations in Alternative 1 would be more heavily distributed in the Owens River Valley subarea, whereas the Preferred Alternative would have a larger distribution of terrestrial operational impacts in the Cadiz Valley and Chocolate Mountains, West Mojave and Eastern Slopes, and Imperial Borrego Valley subareas. Both the Preferred Alternative and Alternative 1 would direct renewable energy development to DFAs that are designed to minimize impacts to biological resources and both would implement CMAs to avoid, minimize, and compensate for operational impacts from vegetation degradation and wildlife disturbance.

IV.7.3.3.7.3 Alternative 1 Compared with Preferred Alternative for NCCP

The impacts of the NCCP for Alternative 1 are the same as those defined in Section IV.7.3.2.1 for the Plan-wide analysis. As a result, the comparison of Alternative 1 with the Preferred Alternative for the NCCP is the same as described above for Plan-wide DRECP.

IV.7.3.3.7.4 Alternative 1 Compared with Preferred Alternative for the GCP

Alternative 1 would allow renewable energy development on approximately 971,000 acres of DFAs on nonfederal lands as compared to the approximately 1.6 million acres of DFAs on nonfederal lands under the Preferred Alternative. Under Alternative 1, the Reserve Design Lands would include approximately 2.9 million acres on nonfederal lands, including

434,000 acres within existing conservation areas, 1.2 million acres within BLM LUPA conservation designations, and 1.2 million acres within Conservation Planning Areas. This compares to the Preferred Alternative that includes approximately 2.7 million acres of Reserve Design Lands on nonfederal lands, including 434,000 acres within existing conservation areas, 1.2 million acres within BLM LUPA conservation designations, and 1.1 million acres within Conservation Planning Areas. The following provides a comparative analysis for specific biological resources.

Impacts to Natural Communities for the GCP

A summary of the differences between effects under this Alternative and the Preferred Alternative is provided below.

California forest and woodlands

Overall, there would be no impacts to California forest and woodlands under Alternative 1 under the GCP, compared to 80 acres under the Preferred Alternative, which would be located in the West Mojave and Eastern Slopes subarea.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 800 acres of chaparral and coastal scrubs would be impacted under Alternative 1 under the GCP, compared to 1,000 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts from solar in the Pinto Lucerne Valley and Eastern Slopes and greater impacts from transmission in the West Mojave and Eastern Slopes subarea. However, there are fewer impacts from wind the Pinto Lucerne Valley and Eastern Slopes subarea and from solar and wind in the West Mojave and Eastern Slopes subarea.

Desert conifer woodlands

Overall, approximately 800 acres of desert conifer woodlands would be impacted under Alternative 1, compared to 900 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts from solar development and transmission in the Pinto Lucerne Valley and Eastern Slopes, but fewer impacts from solar and wind in the West Mojave and Eastern Slopes subarea.

Desert outcrop and badlands

Overall, approximately 2,000 acres of desert outcrop and badlands would be impacted under Alternative 1, compared to 1,000 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts in the Imperial Borrego Valley and

Providence and Bullion Mountains subareas, with the greatest difference being in the Imperial Borrego Valley. There are fewer impacts in the Cadiz Valley and Chocolate Mountains and West Mojave and Eastern Slopes subareas under Alternative 1 under the GCP than under the Preferred Alternative.

Desert scrubs

Overall, approximately 58,000 acres of desert scrubs would be impacted under Alternative 1 under the GCP, compared to 45,000 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts under Alternative 1 in all impacted subareas with the largest difference in the West Mojave and Eastern Slopes subarea. The Imperial Borrego Valley is the only subarea with geothermal effects under Alternative 1 under the GCP, which exceed those under the Preferred Alternative.

Dunes

Like the Preferred Alternative, impacts to dune communities would be minimized under Alternative 1 under the GCP since application of the CMAs would require that dune communities be avoided to the maximum extent feasible in DFAs. In addition, CMA application would prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

Grasslands

Overall, approximately 6,000 acres of grasslands would be impacted under both Alternative 1 and the Preferred Alternative. Compared to the Preferred Alternative, there are actually greater impacts in three of the four subareas impacted but approximately 1,000 acres fewer impacts in the West Mojave and Eastern Slopes subarea resulting in a fewer impacts to grasslands overall.

Riparian

Like the Preferred Alternative, impacts to riparian communities would be avoided under Alternative 1 under the GCP since application of the CMAs would require that riparian communities be avoided to the maximum extent feasible in DFAs. In addition, setbacks from riparian communities would be required that range from 200 feet for Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub to 0.25 mile for Southwestern North American riparian evergreen and deciduous woodland and Southwestern North American riparian/wash scrub.

Wetlands

Overall, approximately 8,000 acres of wetlands would be impacted under Alternative 1 under the GCP, compared to 5,000 acres under the Preferred Alternative. Like the Preferred Alternative, impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep would not occur under Alternative 1 since application of the CMAs would require that these communities be avoided to the maximum extent feasible in DFAs, including a 0.25-mile setback.

Compared to the Preferred Alternative, there are fewer impacts in the West Mojave and Eastern Slopes subareas, but greater impacts in all other impacted subareas. The largest difference is in more impacts to open water at the Salton Sea in the Imperial Borrego Valley subarea under Alternative 1, mostly from solar development.

Conservation of Natural Communities for the GCP

A summary of the differences between conservation under this Alternative and the Preferred Alternative is provided below.

California forest and woodlands

Overall, approximately 24,000 acres (23%) of California forest and woodlands would be conserved under both Alternative 1 and the Preferred Alternative for the GCP.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 12,000 acres (15%) of chaparral and coastal scrubs would be conserved under Alternative 1, compared to 11,000 acres (13%) under the Preferred Alternative for the GCP. Compared to the Preferred Alternative, there is more conserved acreage, mostly from Conservation Planning Areas, in the West Mojave and Eastern Slopes subarea.

Desert conifer woodlands

Overall, approximately 20,000 acres (20%) of desert conifer woodlands would be conserved under Alternative 1, compared to 19,000 acres (18%) under the Preferred Alternative for the GCP. Compared to the Preferred Alternative, there is more conservation, mostly from Conservation Planning Areas, in the West Mojave and Eastern Slopes subarea.

Desert outcrop and badlands

Overall, approximately 109,000 acres (50%) of desert outcrop and badlands would be impacted under Alternative 1, compared to 110,000 acres (50%) under the Preferred

Alternative for the GCP. In addition to conservation between these subareas being similar overall, the distribution of conservation is also very similar.

Desert scrubs

Overall, approximately 826,000 acres (28%) of desert scrubs would be conserved under Alternative 1, compared to 833,000 acres (28%) under the Preferred Alternative for the GCP. Only one of the subareas has greater conservation of desert scrubs under Alternative 1 compared to the Preferred Alternative—Kingston and Funeral Mountains. The largest difference is in the Mojave and Silurian Valley subarea. Overall, fewer acres are conserved in NLCS areas and wildlife allocations under Alternative 1, but more desert scrub acreage is conserved in ACECs.

Dunes

Overall, approximately 7,000 acres (21%) of dunes would be conserved under both Alternative 1 and the Preferred Alternative for the GCP. In addition to conservation, impacts to dune communities would be minimized under both alternatives since application of the CMAs would require that dune communities be avoided to the maximum extent feasible in DFAs. In addition, CMA application would prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

Grasslands

Overall, approximately 27,000 acres (13%) of grasslands would be conserved under Alternative 1, compared to 24,000 acres (12%) under the Preferred Alternative for the GCP. Compared to the Preferred Alternative, there is more conservation of grasslands in the West Mojave and Eastern Slopes subarea from Conservation Planning Areas.

Riparian

Overall, approximately 73,000 acres (37%) of dunes would be conserved under Alternative 1, compared to 74,000 acres (37%) under the Preferred Alternative for the GCP. Conservation of riparian communities is both similar overall and in its the distribution and conservation components between the alternatives.

In addition to conservation, impacts to riparian communities would be avoided under both alternatives since application of the CMAs would require that riparian communities be avoided to the maximum extent feasible in DFAs. In addition, setbacks from riparian communities would be required that range from 200 feet for Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-

desert wash woodland/scrub to 0.25 mile for Southwestern North American riparian evergreen and deciduous woodland and Southwestern North American riparian/wash scrub.

Wetlands

Overall, approximately 73,000 acres (22%) of wetlands would be impacted under Alternative 1, compared to 72,000 acres (22%) under the Preferred Alternative for the GCP. There is more conserved acreage of wetlands primarily in the BLM LUPA conservation designations and Conservation Planning Areas in the West Mojave and Eastern Slopes subarea. There is less wetland acreage conserved in the BLM LUPA Designations in the Mojave and Silurian Valley under Alternative 1.

In addition to conservation, impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep would not occur under both alternatives since application of the CMAs would require that these communities be avoided to the maximum extent feasible in DFAs, including a 0.25-mile setback.

Impacts to Covered Species Habitat

Overall, there are somewhat greater impacts to suitable habitat for Covered Species under Alternative 1 compared to the Preferred Alternative for the GCP. The only subareas where more suitable habitat for Covered Species would impacted under the Preferred Alternative would be the Kingston and Funeral Mountains subarea, which would not be impacted at all under Alternative 1. More or about the same amount of suitable habitat for Covered Species would be impacted under Alternative 1 compared to the Preferred Alternative except for the following species: Tehachapi slender salamander, California condor, golden eagle, alkali mariposa-lily, Bakersfield cactus, desert cymopterus, Mojave monkeyflower, and Mojave tarplant. However, CMA application would further avoid and minimize impacts to suitable habitat for Covered Species under both alternatives as described in Section IV.7.3.3.1.1.

Impacts to Non-Covered Species Habitat

Overall, Alternative 1 only has the potential for greater impacts to suitable habitat for a few Non-Covered Species as compared to the GCP Preferred Alternative.

Potential impacts to dune-restricted species would be the same for both Alternatives. In addition, application of CMAs and general siting design would further protect spring-, cave-, and dune-restricted species by avoiding renewable development in these habitats under both alternatives. More suitable habitat for Non-Covered Species could be impacted under Alternative 1 compared to Preferred Alternative for the majority of amphibian/reptile species. The majority of the bird Non-Covered Species would have greater potential impacts to suitable habitat under the Preferred Alternative as compared to Alternative 1. Greater potential impacts to suitable habitat for the majority of mammal Non-Covered

Species could occur under Alternative 1 as compared to the Preferred Alternative. The majority of plant Non-Covered Species could have greater potential impacts under Alternative 1 compared to the Preferred Alternative.

Conservation of Covered Species Habitat

Overall, there is slightly less conservation of Covered Species habitat under Alternative 1 compared to the Preferred Alternative for the GCP. There is more conservation in Conservation Planning Areas under Alternative 1, but less conservation in BLM LUPA conservation designations. There is greater conservation of Covered Species habitat in the Imperial Borrego Valley, Kingston and Funeral Mountains, Providence and Bullion Mountains, and West Mojave and Eastern Slopes subareas under Alternative 1 compared to the Preferred Alternative. The largest difference of these subareas being in the West Mojave and Eastern Slopes subarea. However, the difference between conservation of Covered Species suitable habitat is greatest in the Mojave and Silurian Valley subarea compared to the other subareas.

More suitable habitat for the following Covered Species would be conserved under the Preferred Alternative compared to Alternative 1: Agassiz's desert tortoise, Owens pupfish, Owens tui chub, least Bell's vireo, Bendire's thrasher, golden eagle (foraging), bighorn sheep (inter-mountain habitat only), California leaf-nosed bat, Townsend's big-eared bat, pallid bat, Mojave ground squirrel, Little San Bernardino Mountains linanthus, Owens Valley checkerbloom, and Parish's daisy. For the remaining species, more or the same suitable habitat would be conserved under the Alternative 1.

In addition to conservation of suitable habitat for Covered Species, compensation CMAs would offset habitat loss for all Covered Species under both alternatives. CMAs also require avoidance and minimization of Covered Species in DFAs and CMAs would be applied in the Reserve to benefit Covered Species.

Impacts to the Desert Linkage Network

Overall, more acres of the desert linkage network would be impacted under Alternative 1 compared to the Preferred Alternative for the GCP. The biggest differences between the Alternatives would be in the West Mojave and Eastern Slopes, Pinto Lucerne Valley and Eastern Slopes and Mojave and Silurian Valley subareas.

To avoid and minimize impacts to the desert linkage network beyond what is presented in Table IV.7-141, Covered Activities will be sited and designed to maintain the function of wildlife connectivity in the following linkage and connectivity areas: (1) across Interstate 10 centered on Wiley's Well Road to connect the Mule and McCoy mountains, (2) across Interstate 10 to connect the Chuckwalla and Palen mountains, (3) across Interstate 10 to connect the Chuckwalla Mountains to the Chuckwalla Valley east of Desert Center, and (4)

the confluence of Milpitas Wash and Colorado River floodplain. In addition, the Riparian and Wetland Natural Communities and Covered Species CMAs will contribute to maintaining and promoting habitat connectivity and wildlife movement.

Conservation of the Desert Linkage Network

Overall, there is greater conservation of the desert linkage network under the Preferred Alternative compared to Alternative 1 for the GCP. The biggest difference in acreage would be in the Mojave and Silurian Valley subarea. In addition to conservation of the desert linkage network, CMAs provide for the avoidance and minimization of certain linkages in the DFAs.

Operational Impacts

The operation of renewable energy would result in the degradation of vegetation through the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants as well as the disturbance of wildlife due to noise, predator avoidance behavior, and light and glare. Alternative 1 would result in a greater amount of terrestrial operational impacts in the GCP when compared with the Preferred Alternative. Additionally, the distribution of vegetation degradation and wildlife disturbance as a result of operational impacts would be distributed differently under the Preferred Alternative and Alternative 1. The degradation of vegetation and disturbance of wildlife during operations in Alternative 1 would be more heavily distributed in the Imperial Borrego Valley subarea, while the Preferred Alternative would have a slightly greater distribution of terrestrial operational impacts in the Kingston and Funeral Mountains subarea. Both the Preferred Alternative and Alternative 1 would direct renewable energy development to DFAs that are designed to minimize impacts to biological resources and both would implement CMAs to avoid, minimize, and compensate for operational impacts from vegetation degradation and wildlife disturbance.

Alternative 1 would result in an estimated 3,855 fewer bird collisions and 17,856 fewer bat collision with wind turbines than the Preferred Alternative. However, this would result in an additional 32,470 acres of solar development, with a proportional increase in the associated operational impacts. Additional solar development would occur in nonfederal lands in the Cadiz and Chocolate Mountains, Imperial Borrego Valley, Mojave and Silurian Valley, Owens River Valley, Pinto and Lucerne Valley and Eastern Slopes, Providence and Bullion Mountains, and in the West Mojave and Eastern Slopes subareas. Impacts from Transmission would be broadly similar. With the focus of development on agricultural lands, Alternative 1 would reduce available foraging habitat for birds like the greater sandhill crane and burrowing owl in Imperial Borrego Valley. Further, the focus on agricultural and disturbed lands in the West Mojave and Eastern Slopes, and the Pinto Lucerne Valley would result in increased impacts to burrowing owl and Swainson's hawk. For these species, Alternative 1 is likely to result in more impacts operational impacts.

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IV.7.3.4 Alternative 2

The impact analysis for biological resources under Alternative 2 is provided below.

IV.7.3.4.1 Plan-Wide Impacts of Implementing the DRECP: Alternative 2

This section provides the Plan-wide assessment of impacts of implementing the DRECP for Alternative 2. This Plan-wide assessment addresses the impacts and mitigation measures from renewable energy and transmission development and impacts of the reserve design.

IV.7.3.4.1.1 Plan-Wide Impacts and Mitigation Measures from Renewable Energy and Transmission Development

Impact Assessment

The following provides the Plan-wide assessment of impacts and mitigation measures for renewable energy and transmission development for Alternative 2. Impacts are organized by biological resources impact statement (i.e., BR-1 through BR-9). Alternative 2 includes DFAs (2,473,000 acres) and transmission corridors where approximately 169,000 acres of ground disturbance related impacts and operational impacts would occur. As described in Section IV.7.1.1, the reported impact acreage (e.g., acres of impact to natural communities or Covered Species habitat) is based on the overlap of the DFAs and the resource (e.g., mapped natural community or modeled Covered Species habitat) times the proportion of the impacts from Covered Activity development anticipated with the DFA. Alternative 2 includes Future Assessment Areas (FAAs), and these areas are not considered impacted or conserved in this analysis. In Alternative 2, the SAAs from the Preferred Alternative are DFAs, and this analysis of Alternative 2 includes impacts within those lands.

Impact BR-1: Siting, construction, decommissioning, and operational activities would result in loss of native vegetation.

The following provides an analysis of the impacts of the development of Covered Activities on natural communities in the Plan Area. Table IV.7-153 shows the impacts to natural communities. An effects summary by general community is provided below. Appendix R2 provides a detailed analysis of natural community effects by ecoregion subarea.

<u>California forest and woodlands</u>

California forest and woodlands are limited to the higher elevations in the Plan Area, where they occur primarily in the Tehachapi Mountains in Kern County and the mountains in southwest San Bernardino County.

Overall, approximately 300 acres (0.2%) of California forest and woodlands would be impacted under Alternative 2. Because California forest and woodlands are located primarily in peripheral portions of the Plan Area with little overlap with DFAs, impacts to these communities are limited in extent and are primarily associated with effects from transmission. Furthermore, CMAs would be implemented to address roosting covered bat species (AM-DFA-BAT-1, AM-RES-RL-BAT-1, and AM-RES-RL-BAT-2), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help diminish these effects.

California forest and woodlands provide habitat for the following Covered Species: Tehachapi slender salamander, golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, bighorn sheep, and Bakersfield cactus. Therefore, impacts to this community may have an adverse effect on these species by removing or degrading suitable habitat. However, application of species-specific CMAs would help avoid and minimize that effect and compensation CMAs would offset the effect (COMP-1 and COMP-2).

Chaparral and coastal scrubs (Cismontane scrub)

Chaparrals in the Plan Area occur in the Tehachapi Mountains and at the base of the San Gabriel Mountains near Antelope Valley in the southern portion of the Plan Area. Coastal scrubs in the Plan Area generally occur east of the Tehachapi Mountains near Mojave, in the southern portion of the Plan Area from Mountain Top Junction east of Highway 138 east to Mojave River Forks Regional Park, in the Fort Irwin area, and in scattered locations west to the Plan Area boundary.

Overall, approximately 1,000 acres (1.2%) of the chaparral and coastal scrubs would be impacted under Alternative 2. Impacts would be primarily from solar development. Most impacts would be to Central and South Coastal Californian coastal sage scrub. Most impacts to chaparral and coastal scrubs would occur in the Western Mojave and Eastern Slopes subarea, but some would also occur in the Pinto Lucerne Valley and Eastern Slopes subarea. CMAs would be implemented to address Covered Species (AM-DFA-BAT-1, AM-RES-RL-BAT-1, AM-RES-RL-BAT-2, AM-DFA-PLANT-1 through AM-DFA-PLANT-3, AM-RES-BLM-PLANT-1, and AM-RES-RL-PLANT-1 through AM-RES-RL-PLANT-3), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects and compensation CMAs would offset the effect (COMP-1 and COMP-2).

Chaparral and coastal scrubs provide habitat for the following Covered Species: golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, Parish's daisy, and Bakersfield cactus. Therefore, impacts to this general community may have a negative effect on these species by removing or degrading suitable habitat.

However, application of species-specific CMAs would help avoid and minimize that effect and compensation CMAs would offset the effect.

Desert conifer woodlands

The desert conifer woodlands in the Plan Area primarily occur in the Tehachapi Mountains, along the southwestern boundary of the Plan Area to the San Gabriel Mountains, in the Providence and Bullion Mountains, Kingston and Funeral Mountains, and the Clark Mountain Range. All of the desert conifer woodlands in the Plan Area are classified as Great Basin pinyon-juniper woodland.

Overall, approximately 1,000 acres (0.4%) of the desert conifer woodlands would be impacted under Alternative 2. Impacts would be primarily from solar development. Most impacts to desert conifer woodlands would occur in the Western Mojave and Eastern Slopes subarea, but some would also occur in the Pinto Lucerne Valley and Eastern Slopes subarea. CMAs would be implemented to address roosting covered bat species (AM-DFA-BAT-1, AM-RES-RL-BAT-1, and AM-RES-RL-BAT-2), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects and compensation CMAs would offset the effect.

Desert conifer woodlands provide habitat for the following Covered Species: Tehachapi slender salamander, golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, bighorn sheep, and Parish's daisy. Therefore, impacts to this general community may have a negative effect on these species by removing or degrading suitable habitat; however, application of species-specific CMAs would help diminish that effect.

Desert outcrop and badlands

Desert outcrop and badlands occur throughout much of the Plan Area, but is most prevalent in the eastern and southern portions south of the Piute Valley. All of the desert outcrop and badlands are classified as North American warm desert bedrock cliff and outcrop.

Overall, approximately 9,000 acres (0.5%) of the desert outcrop and badlands would be impacted under Alternative 2. Impacts would be primarily from solar and transmission development. Impacts to desert conifer woodlands are concentrated in the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas. CMAs would be implemented to address roosting covered bat species (AM-DFA-BAT-1, AM-RES-RL-BAT-1, and AM-RES-RL-BAT-2), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects and compensation CMAs would offset the effect.

Desert outcrop and badlands provide habitat for the following Covered Species: golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, and bighorn sheep. These communities also provide habitat for desert kit fox (Planning Species). Covered Species associated with desert scrub may also be associated with this general community. Therefore, impacts to desert outcrop and badlands may have a negative effect on these species by removing or degrading suitable habitat. However, application of species-specific CMAs (COMP-1 and COMP-2) would help diminish that effect.

Desert scrubs

Desert scrubs, which comprise more than 70% of the Plan Area, are distributed throughout the Plan Area. There are nine desert scrub natural communities identified in the Plan Area, but the majority of the general community on available lands is comprised of lower bajada and fan Mojavean–Sonoran desert scrub (82% or 10,830,000 acres).

Overall, approximately 92,000 acres (0.7%) of desert scrubs would be impacted under Alternative 2. Impacts would be primarily from solar development, but transmission accounts for approximately 17,000 acres of impacts to desert scrub and wind and geothermal account for 11,000 acres and 7,000 acres of impacts to desert scrub, respectively. Most impacts would be to the most prevalent desert scrub community: Lower Bajada and Fan Mojavean - Sonoran desert scrub. Intermontane seral shrubland is the community that would have the greatest proportion of impacts, but only about 3% of this community would be impacted (compared with 1% or less for all other desert scrub communities).

The majority of impacts to desert scrub would occur in the Western Mojave and Eastern Slopes and Imperial Borrego Valley subareas (53%), but impacts to desert scrubs are widely distributed; the Piute Valley and Sacramento Mountains subarea is the only subarea without impacts to this general community. CMAs would be implemented to that would also help reduce adverse effects to desert scrubs. These include avoidance, setbacks, and/or suitable habitat impact caps for flat-tailed horned lizard (AM-RES-RL-ICS-8 and AM-RES-RL-ICS-9 and AM-DFA-ICS-16), Agassiz's desert tortoise (AM-DFA-ICS-3 through 4; AM-DFA-ICS-5 and 6 (Alternative 2), AM-DFA-ICS-7 through AM-DFA-ICS-15, and AM-RES-RL-ICS-1 through AM-RES-RL-ICS-7), Mohave ground squirrel (AM-DFA-ICS-36 through AM-DFA-ICS-43 and AM-RES-BLM-ICS-14 through AM-RES-BLM-ICS-17), bat Covered Species (AM-DFA-BAT-1, AM-RES-RL-BAT-1, and AM-RES-RL-BAT-2), and plant Covered Species (AM-DFA-PLANT-1 through AM-DFA-PLANT-3, AM-RES-BLM-PLANT-1, and AM-RES-RL-PLANT-1 through AM-RES-RL-PLANT-3). Furthermore, CMAs would be implemented to address soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects and compensation CMAs (COMP-1 and COMP-2) would offset the effect.

Desert scrubs provide habitat for the following Covered Species: golden eagle, California condor, Bendire's thrasher, burrowing owl, Swainson's hawk, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, Mohave ground squirrel, bighorn sheep, desert tortoise, flat-tailed horned lizard, Mojave fringe-toed lizard, triple-ribbed milk-vetch, alkali mariposa-lily, desert cymopterus, Mojave tarplant, Little San Bernardino Mountains linanthus, Mojave monkeyflower, and Bakersfield cactus. These communities also provide habitat for burro deer and desert kit fox (Planning Species). Therefore, impacts to this general community may have a negative effect on these species by removing or degrading suitable habitat. However, application of species-specific CMAs would help avoid and minimize that effect and compensation CMAs would offset the effect.

Dunes

Dune communities are restricted but scattered across the Plan Area, and include approximately 12 systems in the Mojave Desert and lower Great Basin Desert and 4 systems in the Sonoran Desert, as well as numerous smaller dunes. The largest dune area is located in the East Mesa-Sand Hill portion of the Sonoran Desert. Dune natural communities in the Plan Area are classified as North American warm desert dunes and sand flats.

Impacts to dune communities would be minimized under Alternative 2 through application of the dune avoidance and minimization CMAs (AM-DFA-DUNE-1 through AM-DFA-DUNE-3, AM-RES-BLM-DUNE-1, AM-RES-BLM-DUNE-2, and AM-RES-RL-DUNE-1 through AM-RES-RL-DUNE-3) as well as landscape-level CMAs for Aeolian processes (AM-LL-3). Compensation CMAs would offset any impacts determined to be unavoidable (COMP-1 and COMP-2).

Dune communities provide habitat for the following Covered Species: Mojave fringe-toed lizard and flat-tailed horned lizard. Therefore, avoidance of impacts to this general community would benefit these species and compensation CMAs would offset any impacts determined to be unavoidable.

Grasslands

Grassland communities cover just over 1% of the Plan Area but are scattered throughout the Area. They are most common in the western portion of the Plan Area, especially along the boundary from east of Bakersfield to the southern end of the San Bernardino National Forest.

Overall, approximately 5,000 acres (2.1%) of grassland communities would be impacted under Alternative 2. The majority of impacts to grassland communities would be from solar development in the West Mojave and Eastern Slopes subarea. Impacts would also occur in the Cadiz Valley and Chocolate Mountains, Mojave and Silurian Valley, and Pinto Lucerne Valley and Eastern Slopes subareas. CMAs would be implemented to address

breeding, nesting, or roosting species (AM-DFA-AG-2), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects and compensation CMAs would offset the effect (COMP-1 and COMP-2).

Grassland communities provide habitat for the following Covered Species: golden eagle, burrowing owl, mountain plover, Swainson's hawk, and Bendire's thrasher. These communities also provide habitat for desert kit fox (Planning Species). Therefore, impacts to this community may have a negative effect on these species by removing or degrading suitable habitat. However, application of species-specific CMAs would help avoid and minimize that effect and compensation CMAs would offset the effect.

Riparian

Riparian communities cover nearly 6% of the Plan Area but are scattered throughout the Area, but are most common in the southern portion of the Plan Area in the Colorado River area, in the Cadiz and Chocolate Mountains and Imperial Borrego Valley subareas, and along major drainages such as the Mojave, Colorado, and Amargosa Rivers.

Riparian communities include microphyll woodlands, which are important vegetation assemblages often associated with desert washes that are comprised of the Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub natural communities. A subset of these communities would be considered groundwater-dependent vegetation (e.g., mesquite bosques). Under Alternative 2, microphyll woodlands occur within DFAs in the McCoy Valley area in the Cadiz Valley and Chocolate Mountains ecoregion subarea and in the south of Chocolate Mountains area east of the Imperial Sand Dunes in the Imperial Borrego Valley ecoregion subarea.

Impacts to riparian communities would be avoided under Alternative 2 through application of the riparian CMAs (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). In addition, setbacks from riparian communities would be required that range from 200 feet for Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub to 0.25 mile for Southwestern North American riparian evergreen and deciduous woodland and Southwestern North American riparian/wash scrub. Compensation CMAs would offset any impacts determined to be unavoidable (COMP-1 and COMP-2).

Riparian communities provide habitat for the following Covered Species: California black rail, Gila woodpecker, Yuma clapper rail, least Bell's vireo, southwestern willow flycatcher, western yellow-billed cuckoo, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, and Tehachapi slender salamander. These communities also provide habitat for burro

deer (Planning Species). In addition, species associated with desert scrub are also associated with Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub. Avoidance of impacts to riparian communities would benefit these species. Furthermore, there are also CMAs to avoid impacts to riparian species including pre-construction nesting bird surveys for riparian and wetland bird Covered Species. Application of species-specific CMAs would also benefit species associated with riparian communities. Compensation CMAs would offset any impacts determined to be unavoidable.

Wetlands

Wetland communities cover nearly 5% of the Plan Area but are scattered throughout the Area, including the Owens River Valley, and around various dry lakes and playas. The largest single contributor to wetlands in the Plan Area is the open water of the Salton Sea (22% of the wetlands). However, several isolated wetlands occur throughout the Plan Area (e.g. Amargosa WSR) and these are important for their tendency to be populated with locally endemic species of plants and animals.

Overall, approximately 9,000 acres (1.1%) of wetland communities, specifically North American warm desert alkaline scrub, herb playa and wet flat, and open water, would be impacted under Alternative 2. All impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep, except those impacts determined to be unavoidable, would be avoided under Alternative 2 though application of the wetland CMAs, including a 0.25-mile setback (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). Over a third of the impacts to wetland communities would be in DFAs in open water of the Salton Sea in the Imperial Borrego Valley subarea. Of the remaining impacts to wetland communities, the majority would occur from solar development in the West Mojave and Eastern Slopes subarea.

CMAs for North American warm desert alkaline scrub and herb playa and wet flat, southwestern North American salt basin and high marsh, and other undifferentiated wetland-related land covers (i.e., "Playa", "Wetland", and "Open Water") would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided riparian or wetland natural communities (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). Compensation CMAs would offset any impacts to these features (COMP-1 and COMP-2).

Wetland communities provide habitat for the following Covered Species: California black rail, Yuma clapper rail, tricolored blackbird, California leaf-nosed bat, pallid bat, Townsend's big-eared bat, desert pupfish, Mohave tui chub, Owens pupfish, and Owens tui chub. In addition, species associated with desert scrub are also associated with Southwestern North American Salt Basin and High Marsh. Avoidance of impacts to wetland

communities would benefit these species. Furthermore, there are also CMAs to avoid impacts to wetland species including pre-construction nesting bird surveys for riparian and wetland bird Covered Species. In addition, application of species-specific CMAs would help avoid and minimize impacts to species associated with wetland communities. Compensation CMAs would offset any impacts determined to be unavoidable.

Table IV.7-153
Plan-Wide Impact Analysis for Natural Communities – Alternative 2

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
California forest and woodland						
Californian broadleaf forest and woodland	72,000	20	0	0	0	30
Californian montane conifer forest	78,000	100	100	0	40	300
Chaparral and coastal scrub community (Cismontane scrub)						
Californian mesic chaparral	4,000	0	0	0	0	0
Californian pre-montane chaparral	1,000	0	0	0	0	0
Californian xeric chaparral	24,000	0	0	0	10	10
Central and south coastal California seral scrub	1,000	10	0	0	0	20
Central and South Coastal Californian coastal sage scrub	54,000	800	200	0	200	1,000
Western Mojave and Western Sonoran Desert borderland chaparral	24,000	20	20	0	40	80
Desert conifer woodlands						
Great Basin Pinyon - Juniper Woodland	287,000	700	200	0	100	1,000
Desert outcrop and badlands						
North American warm desert bedrock cliff and outcrop	1,613,000	4,000	1,000	600	3,000	9,000
Desert Scrub						
Arizonan upland Sonoran desert scrub	57,000	0	0	0	0	0
Intermontane deep or well-drained soil scrub	106,000	500	40	0	90	600

Table IV.7-153
Plan-Wide Impact Analysis for Natural Communities – Alternative 2

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Intermontane seral shrubland	74,000	2,000	200	0	100	2,000
Inter-Mountain Dry Shrubland and Grassland	437,000	1,000	400	600	600	3,000
Intermountain Mountain Big Sagebrush Shrubland and steppe	76,000	10	10	0	0	20
Lower Bajada and Fan Mojavean - Sonoran desert scrub	10,858,000	50,000	10,000	6,000	15,000	80,000
Mojave and Great Basin upper bajada and toeslope	1,333,000	2,000	600	0	800	4,000
Shadscale - saltbush cool semi-desert scrub	279,000	2,000	300	400	600	3,000
Southern Great Basin semi-desert grassland	100	0	0	0	0	0
Dunes						
North American warm desert dunes and sand flats	282,000	0	0	0	0	0
Grassland						
California Annual and Perennial Grassland	230,000	4,000	500	0	500	5,000
California annual forb/grass vegetation	8,000	200	20	0	0	200
Riparian						
Madrean Warm Semi-Desert Wash Woodland/Scrub	697,000	0	0	0	0	0
Mojavean semi-desert wash scrub	30,000	0	0	0	0	0
Riparian	600	0	0	0	0	0
Sonoran-Coloradan semi-desert wash woodland/scrub	191,000	0	0	0	0	0
Southwestern North American riparian evergreen and deciduous woodland	6,000	0	0	0	0	0

Table IV.7-153
Plan-Wide Impact Analysis for Natural Communities – Alternative 2

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Southwestern North American riparian/wash scrub	66,000	0	0	0	0	0
Wetland						
Arid West freshwater emergent marsh	4,000	0	0	0	0	0
Californian warm temperate marsh/seep	400	0	0	0	0	0
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	310,000	1,000	300	0	300	2,000
Open Water	209,000	2,000	20	1,000	1,000	4,000
Playa	78,000	0	0	0	10	10
Southwestern North American salt basin and high marsh	261,000	3,000	200	0	200	3,000
Wetland	8,000	60	10	0	20	80
Other Land Cover – Developed and Disturbed Areas						
Agriculture	711,000	27,000	800	9,000	9,000	46,000
Developed and Disturbed Areas	447,000	600	70	60	2,000	2,000
Not Mapped	7,000	200	60	30	30	300
Rural	114,000	1,000	100	300	800	2,000
Total	**19,040,000**	**102,000**	**15,000**	**17,000**	**34,000**	**169,000**

1 Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

2 Solar impacts include ground-mounted distributed generation.

3 Impacts to the dune community, riparian communities, arid west freshwater emergent marsh, and Californian warm temperate marsh/seep would be avoided through implementation of CMAs. Only impacts determined to be unavoidable would occur in these natural communities.

Notes: The natural community classification system is described in Chapter III.7 and follows CDFG 2012. Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Rare natural communities include natural community alliances with state rarity rankings S1, S2, or S3 (critically imperiled, imperiled, or vulnerable). Of the 51 rare natural

community alliances mapped in the Plan Area, 6 rare alliances would be impacted under Alternative 2. the vast majority of the impact acreage (3,000 acres) would be comprised of impacts to Joshua tree woodland (*Yucca brevifolia*) occurring in the West Mojave and Eastern Slopes and Pinto Lucerne Valley and Eastern Slopes subareas. CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection that would help avoid and minimize these effects on rare natural communities. Additionally, AM-DFA-ONC-1 and -2 would require inventorying and preserving or transplanting cactus, yuccas, and succulents. While the compensation CMAs would offset the lost habitat acreage of these impacts, the compensation CMAs do not specifically require the replacement of, or mitigation for, specific rare natural community alliances. After application of the CMAs, impacts to rare natural communities from Alternative 2 would be adverse and would require mitigation.

Impact BR-2: Siting, construction, decommissioning, and operational activities would result in adverse effects to jurisdictional waters and wetlands.

Siting, construction, decommissioning, and operations of Covered Activities have the potential to result in adverse effects to federal or state jurisdictional waters and wetlands. In the Plan Area, jurisdictional waters and wetlands would likely include the riparian and wetland communities analyzed under Impact BR-1 and may also include other features including playas, seeps/springs, major rivers, and ephemeral drainage networks.

All Covered Activities would be required to comply with existing, applicable federal and state laws and regulations related to jurisdictional waters and wetlands. Additionally, all impacts to riparian communities would be avoided under Alternative 2 through application of the riparian CMAs including riparian setbacks. All impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep wetlands, except those impacts determined to be unavoidable, would be avoided under Alternative 2 through application of the wetland CMAs, including wetland setbacks (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). Approximately 10,000 acres of other wetland communities would be impacted under Alternative 2. See the analysis for the loss of native vegetation provided under BR-1 for a discussion of these potential impacts. All or a portion of the estimated wetland impacts could result in adverse effects to jurisdictional waters and wetlands without compensation. Compensation CMAs would offset any impacts determined to be unavoidable.

Additionally, playas, seeps/springs, major rivers, and ephemeral drainage networks are waters and wetland features that provide hydrological functions and may be determined to be jurisdictional waters and wetlands. Adverse effects to these features would have the potential to impact the jurisdictional waters and wetlands.

Playa

Less than 1% (2,000 acres) of playa would be impacted by Covered Activities under Alternative 2. The majority of impacts would be associated with solar (2,000 acres), with 300 acres of wind impacts, 300 acres of transmission impacts, and 10 acres of geothermal impacts. Ecoregion subareas of potential impacts to playas include the Cadiz Valley and Chocolate Mountains, Kingston and Funeral Mountains, Mojave and Silurian Valley, Owens River Valley, Panamint Death Valley, Pinto Lucerne Valley and Eastern Slopes, Providence and Bullion Mountains, and West Mojave and Eastern Slopes.

Application of species-specific CMAs would help avoid and minimize impacts to species associated with playas (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). CMAs would also require compliance with all applicable laws and regulations pertaining to wetlands and waters, including playas (AM-PW-9 and AM-LL-2). Compensation CMAs would offset impacts to these features (COMP-1 and COMP-2).

Seep/Spring

Seeps occur within DFAs and transmission corridors and potential impacts to seep/spring locations have the potential to occur under Alternative 2 in the following ecoregion subareas: Imperial Borrego Valley, Kingston and Funeral Mountains, Mojave and Silurian Valley, Owens River Valley, Pinto Lucerne Valley and Eastern Slopes, Providence and Bullion Mountains, and West Mojave and Eastern Slopes. Impacts to seeps and springs would be adverse absent implementation of avoidance measures. Impacts to seep/spring locations and associated Covered Species and hydrological functions would be avoided through adherence to avoidance and minimization CMAs, including habitat assessments and avoidance of seeps with 0.25 mile setbacks (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). Compensation CMAs would offset any impacts determined to be unavoidable (COMP-1 and COMP-2).

Major Rivers

Major rivers occur within DFAs and transmission corridors and potential impacts to major rivers under Alternative 2 have the potential to occur to both the Colorado and Mojave Rivers. Changes in hydrological conditions associated with development could adversely impact these rivers. Impacts to major rivers would be adverse absent implementation of avoidance measures. Impacts to major rivers and associated Covered Species and hydrological functions would be avoided through adherence to avoidance and minimization CMAs. Riparian CMAs would require avoidance of these features with setbacks (AM-DFA-RIPWET-1).

Ephemeral Drainages

Ephemeral drainages occur throughout the Plan Area, and some of these features could be determined to state or federal jurisdictional waters. Impacts to ephemeral drainages would likely occur from Covered Activities. Application of riparian avoidance CMAs (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9) would avoid and minimize impacts to a portion of the ephemeral drainages within DFAs. Additionally, all Covered Activities would be required to comply with existing, applicable federal and state laws and regulations related to jurisdictional waters and wetlands.

Impact BR-3: Siting, construction, decommissioning, and operational activities would result in degradation of vegetation.

Siting, construction, decommissioning, and operational Covered Activities would result in the degradation of vegetation through the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants. The degree to which these factors contribute to the degradation of vegetation corresponds to the distribution of Covered Activities in the Plan Area that would result in dust, fire, and introduction of invasive plants or that would use dust suppressants and implement fire management. As described in Section IV.7.2.1, the extent of some of these adverse effects may occur at or beyond the source of these effects, the project footprint, or the project area depending on the type of effect and other environmental considerations. As such, the potential adverse effects caused by these factors were evaluated using the overlap of the natural community mapping and the estimated distribution of Covered Activities across subareas.

Under the Alternative 2, approximately 13% of the total Plan Area would be DFAs that allow renewable energy development. Based on the planned renewable energy generation and transmission under Alternative 2, the vegetation degradation from dust, dust suppressants, fire, fire management, and invasive plants would collectively result in the terrestrial operational impacts shown in Table IV.7-154. These impacts would mostly occur in the Imperial Borrego Valley, West Mojave and Eastern Slopes, Cadiz Valley and Chocolate Mountains, and the Pinto Lucerne Valley and Eastern Slopes subareas, which would experience most of terrestrial operational impacts, respectively. As a result, these subareas would have the greatest potential to result in the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants.

Table IV.7-154
Plan-Wide Terrestrial Operational Impacts – Alternative 2

Ecoregion Subarea	Solar Impact (acres)[1]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Cadiz Valley and Chocolate Mountains	17,000	16,000	-	8,000	41,000
Imperial Borrego Valley	34,000	11,000	16,000	14,000	75,000
Kingston and Funeral Mountains	2,000	1,000	-	700	3,700
Mojave and Silurian Valley	3,000	3,000	-	1,000	7,000
Owens River Valley	1,000	900	900	700	3,500
Panamint Death Valley	800	200	-	40	1,040
Pinto Lucerne Valley and Eastern Slopes	8,000	16,000	-	6,000	30,000
Piute Valley and Sacramento Mountains	-	-	-	-	-
Providence and Bullion Mountains	1,000	3,000	-	1,000	5,000
West Mojave and Eastern Slopes	36,000	17,000	-	1,000	54,000
Total	**102,000**	**68,000**	**17,000**	**34,000**	**221,000**

[1] Solar impacts include ground-mounted distributed generation.

Notes: Terrestrial operational impacts collectively refers to vegetation degradation impacts (BR-3) from dust, dust suppressants, fire, fire management, and invasive plants and wildlife impacts (BR-4) from creation of noise, predator avoidance behavior, lighting and glare. For the purposes of analysis, terrestrial operational impacts were quantified using the project area extent for solar and geothermal, using 25% of the project area for wind, and the right-of-way area for transmission. Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation, short-term and long-term wind (excluding project area impacts), geothermal project area, and transmission impacts. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Dust and Dust Suppressants

Overall, most natural communities and plant Covered Species would be susceptible to degradation from physical damage, reduced photosynthesis, and reduced net primary productivity as a result of dust created by on-road and off-road vehicle use associated with the operation and maintenance of renewable energy facilities. Specifically, water usage by Mojave desert shrubs has been shown to be particularly affected by dust deposition. These

natural communities are primarily affected by Covered Activities in the West Mojave and Eastern Slopes subarea, which would experience the most of these impacts. Plant Covered Species that could also be affected by abrasion, vegetation loss, root exposure, and burial as a result of dust are prevalent near the DFAs in the Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas. Therefore, considering the distribution of DFAs and these sensitive natural communities and plant Covered Species the West Mojave and Eastern Slopes subarea would experience the greatest magnitude of dust-related impacts. Vegetation degradation as a result of dust would also be prevalent in the Pinto Lucerne Valley and Eastern Slopes subarea to a lesser extent.

The application of dust suppressants is a common management practice used during construction and operations and is a Covered Activity under the Plan to control dust emissions. Dust-related degradation of vegetation would be further minimized with the incorporation of avoidance and minimization CMAs. The Plan-wide avoidance and minimization CMAs would generally identify vegetation in the project area (AM-PW-1), utilize standard practices to minimize the amount of exposed soils (AM-PW-14) and reduce dust caused by soil erosion (AM-PW-10). Additionally, Alternative 2 would implement CMAs that applicable in the DFAs would also serve to reduce vegetation degradation from dust including AM-DFA-ONC-1 and AM-DFA-ONC-2, which would require habitat assessments of natural communities and protection/salvage plans for particular plants found on project sites. CMAs AM-DFA-PLANT-1 through AM-DFA-PLANT-3 would also result in the surveying of plant Covered Species, avoidance and a 0.25 mile setback from plant Covered Species occurrences, and would place an impact caps on suitable habitat for plant Covered Species. Furthermore, various CMAs would reduce potential vegetation degradation from dust created by operation and maintenance of transmission in the reserve design envelope including measures for avoidance of plant Covered Species by substations, setbacks for plant Covered Species, and impact caps on suitable habitat for plant Covered Species (AM-RES-RL-PLANT-1 through AM-RES-RL-PLANT-3). The CMA AM-TRANS-4 would restrict transmission to within designated utility corridors, thereby minimizing the creation of dust from exposed soils as a result of transmission throughout the Plan Area.

The application of dust suppressants can result in chemical and physical changes to an ecosystem, alter hydrological function of soils and drainage areas, and increase pollutant loads in surface water. These affects from the use of dust suppressants are most likely to affect riparian and wetland natural communities. These natural communities are most prevalent near DFAs in the Imperial Borrego Valley and the West Mojave and Eastern Slopes subareas. Plant Covered Species that could also be affected by dust suppressants and are prevalent near the DFAs in the Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas. As a result, the West Mojave and Eastern Slopes and

the Imperial Borrego Valley subareas would contain the largest potential amount of vegetation degradation due to dust suppressants.

Avoidance and minimization CMAs implemented as part of Alternative 2, including AM-PW-9 and AM-PW-10, would utilize standard practices to reduce erosion and runoff of dust suppressant outside of areas where they are applied. The CMA AM-DFA-RIPWET-1 would also establish setbacks and avoidance requirements for all riparian natural communities and some wetland natural communities. Therefore, these measures would minimize potential adverse effects of dust suppressants used during siting, construction, and operational Covered Activities.

Fire and Fire Management

Anthropogenic ignitions of fires that could result from operational and maintenance activities associated with renewable energy facilities could destroy the natural communities found in the Plan Area. Desert scrub natural communities are naturally slow to recover from fire episodes and are more vulnerable to proliferation of non-native grasses that can often successfully compete with and overcome native assemblages. The addition of non-native grasses can create a positive feedback loop of increasing fire frequency and intensity, resulting in substantial and potentially long-term community type conversion. Within the Plan Area desert scrub natural communities are primarily affected by Covered Activities within the West Mojave and Eastern Slopes subarea and to a smaller degree in the Pinto Lucerne Valley and Eastern Slopes subarea. With the distribution of renewable energy development and these natural communities, the greatest magnitude of vegetation degradation as a result of fire would occur in the West Mojave and Eastern Slopes subarea.

Construction and maintenance of fire breaks and other fire management techniques would typically result in the removal of vegetation from woodland, chaparral, and grassland natural communities. However, target fuels reductions in areas of high incidence of non-native, invasive, species (e.g. salt cedar hot spots) can have a beneficial effect on native habitats. Within the Plan Area the potential impacts from Covered Activities on California forest and woodland natural communities are located mostly in the Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas; chaparral and coastal scrubs potential impacts are primarily located within the West Mojave and Eastern Slopes subarea and to a lesser extent in the Pinto Lucerne Valley and Eastern Slopes subarea; and most of the grassland natural communities affected by Covered Activities would occur in the West Mojave and Eastern Slopes subarea. Therefore, with the distribution of renewable energy development and the location of these natural communities that are sensitive to fire management techniques during operation and maintenance activities, the primary areas of

vegetation degradation would be located in the West Mojave and Eastern Slopes subarea and to a lesser extent in the Pinto Lucerne Valley and Eastern Slopes subarea.

The potential degradation of vegetation due to fire and fire management would vary depending on project-specific factors, such as size of the project footprint and proximity to fire prone areas. However, under Alternative 2 avoidance and minimization CMAs would be implemented to reduce the potential adverse operational effects of fire and fire management. Specifically, AM-PW-12 would require projects to use standard practices for fire prevention/protection that would minimize the amount of vegetation clearing and fuel modification. Additionally AM-RES-RL-ICS-5 would require fire suppression activities to minimize the amount of desert tortoise habitat burned in the reserve design envelope. These measures would minimize the amount of vegetation degradation from fire and fire management during siting, construction, and operational Covered Activities.

Invasive Plants

The introduction of invasive plants can be caused by siting, construction, and operational Covered Activities including transportation of invasive plants on the undercarriage of vehicles, creation of disturbed areas, and other environmental changes that favor invasive plant growth. Invasive plants can degrade vegetation by increasing the fuel load and the frequency of fires in plant communities and may induce allelopathic effects that hinder the growth or establishment of other plant species. Most vegetation, including natural communities and plant Covered Species, are generally susceptible to the adverse effects of invasive plants. As such, the most vegetation degradation caused by introduction of invasive plants would occur in the areas with the greatest amount of natural community and plant Covered Species impacts due to renewable energy development. Under Alternative 2 this would occur in the West Mojave and Eastern Slopes and Pinto Lucerne Valley and Eastern Slopes subareas.

The potential vegetation degradation effects that could result from siting, construction, and operational Covered Activities would be minimized through implementation of avoidance and minimization CMAs under Alternative 2. Specifically, the Plan-wide CMA AM-PW-7 would ensure the timely restoration of temporarily disturbed areas that could otherwise promote invasive plants during operations. Additional CMAs would require the use of standard practices to control weeds and invasive plants (AM-PW-11) and require the responsible use of herbicides to reduce potential vegetation degradation (AM-PW-15) for all Covered Activities throughout the Plan Area.

Impact BR-4: Siting, construction, decommissioning, and operational activities would result in loss of listed and sensitive plants; disturbance, injury, and mortality of listed and sensitive wildlife; and habitat for listed and sensitive plants and wildlife.

The following provides an analysis of the impacts of the development of Covered Activities on sensitive plants and wildlife and their habitat in the Plan Area, including Covered Species and Non-Covered Species. In addition to the analysis of the loss of sensitive species and their habitat provided here under Impact BR-4, impacts to nesting birds are addressed under Impact BR-5, impacts on wildlife movement are addressed under Impact BR-6, impacts of habitat fragmentation are addressed under Impact BR-7, impacts of increased predation are addressed under Impact BR-8, and impact of operations on avian, bat, and insect species are addressed under Impact BR-9.

The impact analysis under Impact BR-4 includes the following subsections:

- Covered Species Habitat Impact Analysis by Ecoregion Subarea
- Specific Covered Species Impact Analyses
- Indirect and Terrestrial Operational Impact Analysis
- Non-Covered Species Impact Analysis

Covered Species Habitat Impact Analysis by Ecoregion Subarea

Impacts to plant and wildlife species and their habitat would result from the implementation of Covered Activities. Table IV.7-155 provides the Plan-wide impact analysis for Covered Species habitat. As described in Section IV.7.1.1, the reported impact acreage is based on the overlap of the DFAs and the modeled Covered Species habitat times the proportion of the impacts from Covered Activity development anticipated with the DFA. The majority of impacts to plant and wildlife species and their habitat under Alternative 2 would occur in the Imperial Borrego Valley and West Mojave and Eastern Slopes subareas as described below. Impacts to plant and wildlife species and their habitat under Alternative 2 would also occur in the following subareas: Cadiz Valley and Chocolate Mountains, Kingston and Funeral Mountains, Mojave and Silurian Valley, Owens River Valley, Panamint Death Valley, Pinto Lucerne Valley and Eastern Slopes, Piute Valley and Sacramento Mountains. Supplemental impact analysis tables for impacts to Covered Species habitat by ecoregion subarea are provided in Appendix R2.

West Mojave and Eastern Slopes Ecoregion Subarea

Renewable energy development in the West Mojave and Eastern Slopes subarea would mostly be from solar development, but would also include impacts from wind and transmission development. Typical impacts from these Covered Activities on plant and

wildlife species and their habitat is described in Section IV.7.2. Impacts to suitable habitat for amphibians and reptiles, including Agassiz's desert tortoise, Mojave fringe-toed lizard, and Tehachapi slender salamander. The siting of the DFAs under Alternative 2 largely avoid habitat for Mojave fringe-toed lizard and Tehachapi slender salamander, and CMAs requiring avoidance of and setbacks from riparian habitat, wetland habitat, and dune habitat (AM-DFA-RIPWET-1 and AM-DFA-DUNE-1) would further avoid and minimize the impacts on these species to less than the acreage reported in Table IV.7-155.

There are impacts to suitable habitat for several bird Covered Species in the West Mojave and Eastern Slopes subarea, including Bendire's thrasher, burrowing owl, California condor, golden eagle, least Bell's vireo, mountain plover, southwestern willow flycatcher, Swainson's hawk, and tricolored blackbird. CMAs requiring avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further avoid and minimize the impacts on least Bell's vireo, southwestern willow flycatcher, and tricolored blackbird to less than the acreage reported in Table IV.7-155. Additionally, the CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs (AM-DFA-AG-2).

Suitable habitat for bighorn sheep, desert kit fox, Mohave ground squirrel, pallid bat, California leaf-nosed bat, and Townsend's big-eared bat would be impacted in this subarea. The siting of the DFAs under Alternative 2 largely avoid habitat for bighorn sheep. The CMAs requiring avoidance of and setbacks from riparian and wetland habitat (AM-DFA-RIPWET-1) would further reduce the impacts on those habitats used by Mohave ground squirrel, pallid bat, California leaf-nosed bat, and Townsend's big-eared bat to less than the acreage reported in Table IV.7-155. Compensation CMAs would offset habitat loss for these species.

Suitable habitat for the following plant species would be impacted in the West Mojave and Eastern Slopes subarea: alkali mariposa-lily, Bakersfield cactus, Barstow woolly sunflower, desert cymopterus, Mojave monkeyflower, Mojave tarplant, and Owens Valley checkerbloom. Although modeled suitable habitat for these species may be impacted by Covered Activities in this subarea, the CMAs require surveys for plant Covered Species for all Covered Activities, and the CMAs requiring avoidance of and setbacks from occupied habitat (AM-DFA-PLANT-1 through AM-DFA-PLANT-3) would further reduce the impacts on these species to less than the acreage reported in Table IV.7-155. Compensation CMAs would offset habitat loss for these species.

Imperial Borrego Valley Ecoregion Subarea

Renewable energy development within the Imperial Borrego Valley subarea would be primarily from solar energy development, but would also include impacts from wind, geothermal, and transmission development. Impacts in this subarea would be primarily to land covers other than natural communities, which provide limited suitable habitat for

Covered Species. However, impacts would also occur to desert outcrop and badland, desert scrub, and wetland communities. The Imperial Borrego Valley subarea provides suitable habitat for Agassiz's desert tortoise and flat-tailed horned lizard that would be impacted. The siting of the DFAs under Alternative 2 largely avoid habitat for flat-tailed horned lizard, and CMAs require avoidance of and setbacks from dune habitat (AM-DFA-DUNE-1 through AM-DFA-DUNE-3) would further avoid and minimize the impacts on this species to less than the acreage reported in Table IV.7-155. Compensation CMAs would offset habitat loss for these species.

Impacts would occur to suitable habitat for the following covered bird species in this subarea: Bendire's thrasher, burrowing owl, California black rail, Gila woodpecker, golden eagle, greater sandhill crane, least Bell's vireo, mountain plover, southwestern willow flycatcher, Swainson's hawk, tricolored blackbird, and Yuma clapper rail. CMAs require avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further avoid and minimize the impacts on southwestern willow flycatcher, tricolored blackbird, least Bell's vireo, California black rail, and Yuma clapper rail to less than the acreage reported in Table IV.7-155. Additionally, the CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs (AM-DFA-AG-2). Compensation CMAs would offset habitat loss for these species.

Impacts to suitable habitat for desert pupfish, the only fish species with suitable habitat in this subarea, would be relatively minimal (approximately 100 acres). The avoidance and setback provisions for managed wetlands and agricultural drains (AM-DFA-RIPWET-1) would conserve wetland and riparian features within the agricultural matrix and provide conservation benefits to desert pupfish.

Impacts to suitable habitat for mammal Covered Species would occur for bighorn sheep, California leaf-nosed bat, pallid bat, and Townsend's big-eared bat. Planning Species burro deer and desert kit fox would also be impacted in this subarea. The siting of the DFAs under Alternative 2 largely avoid habitat for bighorn sheep. The CMAs require avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further reduce the impacts on these habitats used by California leaf-nosed, pallid bat, and Townsend's big-eared bat to less than the acreage reported in Table IV.7-155. Compensation CMAs would offset habitat loss for these species.

Table IV.7-155
Plan-Wide Impact Analysis for Covered Species Habitat – Alternative 2

Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Amphibian/Reptile						
Agassiz's desert tortoise	9,858,000	38,000	7,000	800	9,000	55,000
Flat-tailed horned lizard	758,000	7,000	50	7,000	5,000	19,000
Mojave fringe-toed lizard	1,094,000	6,000	1,000	-	3,000	10,000
Tehachapi slender salamander	48,000	80	10	-	-	90
Bird						
Bendire's thrasher	2,141,000	3,000	1,000	500	3,000	8,000
Burrowing owl	5,269,000	72,000	8,000	14,000	20,000	114,000
California black rail	197,000	2,000	20	1,000	1,000	4,000
California condor	1,240,000	14,000	2,000	70	700	17,000
Gila woodpecker	106,000	900	300	200	300	2,000
Golden eagle–foraging	10,747,000	24,000	6,000	800	8,000	39,000
Golden eagle–nesting	4,443,000	2,000	1,000	20	2,000	6,000
Greater sandhill crane	617,000	24,000	600	8,000	9,000	42,000
Least Bell's vireo	226,000	200	70	20	200	400
Mountain plover	828,000	30,000	1,000	8,000	9,000	48,000
Southwestern willow flycatcher	317,000	3,000	100	2,000	2,000	7,000
Swainson's hawk	1,455,000	26,000	2,000	6,000	5,000	38,000
Tricolored blackbird	271,000	5,000	500	20	300	6,000
Western yellow-billed cuckoo	152,000	100	20	-	90	200
Yuma clapper rail	51,000	30	-	20	30	80
Fish						
Desert pupfish	8,000	60	-	30	50	100
Mohave tui chub	300	-	-	-	-	-
Owens pupfish	18,000	20	10	-	20	50
Owens tui chub	17,000	20	10	-	20	50

Table IV.7-155
Plan-Wide Impact Analysis for Covered Species Habitat – Alternative 2

Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Mammal						
Bighorn sheep – inter-mountain habitat	3,854,000	4,000	1,000	70	2,000	7,000
Bighorn sheep – mountain habitat	6,649,000	5,000	3,000	-	5,000	13,000
California leaf-nosed bat	7,132,000	20,000	5,000	4,000	10,000	39,000
Mohave ground squirrel	2,383,000	25,000	3,000	900	2,000	30,000
Pallid bat	16,411,000	62,000	13,000	7,000	21,000	102,000
Townsend's big-eared bat	14,677,000	58,000	12,000	7,000	20,000	97,000
Plant						
Alkali mariposa-lily	119,000	2,000	200	-	100	2,000
Bakersfield cactus	278,000	3,000	500	-	70	3,000
Barstow woolly sunflower	154,000	2,000	60	-	20	2,000
Desert cymopterus	205,000	800	50	-	20	900
Little San Bernardino Mountains linanthus	289,000	1,000	600	-	200	2,000
Mojave monkeyflower	161,000	600	200	-	300	1,000
Mojave tarplant	265,000	900	40	50	100	1,000
Owens Valley checkerbloom	147,000	200	70	20	200	500
Parish's daisy	188,000	1,000	800	-	600	2,000
Triple-ribbed milk-vetch	8,000	-	-	-	-	-

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
[2] Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Specific Covered Species Impact Analyses

Desert Tortoise

For Agassiz's desert tortoise, desert tortoise important areas were identified that include tortoise conservation areas (TCAs), desert tortoise linkages, and desert tortoise high priority habitat (see desert tortoise BGOs in Appendix C).

Under Alternative 2, DFAs occur within TCAs in the following areas: in the West Mojave – 2 ecoregion subunit (the Desert Tortoise Research Natural Area and West Rand Mountains ACEC), in the West Mojave – 3 ecoregion subunit (the Fremont-Kramer critical habitat unit and the location of the SAA from the Preferred Alternative), in the Pinto – 1 ecoregion subunit in upper Lucerne Valley (portion of the Ord-Rodman critical habitat unit) and in the Imperial – 3 ecoregion subunit (Chuckwalla). DFAs also abut TCAs in the following areas: in the Pinto – 1 ecoregion subunit in upper Lucerne Valley (Ord-Rodman) and in the Cadiz – 1 ecoregion subunit in east Riverside (Chuckwalla).

Under Alternative 2, DFAs overlap desert tortoise linkages in the following areas: in the Kingston -1 ecoregion subunit in Pahrump Valley, in the Cadiz – 1 ecoregion subunit in the Chuckwalla to Chemehuevi linkage, in the Pinto – 1 ecoregion subunit in the Ord Rodman to Joshua Tree National Park linkage, in the West Mojave – 5 ecoregion subunit in the Fremont Kramer to Ord Rodman linkage. and in the Kingston – 1 and Mojave -2 ecoregion subunits occurs connecting Superior-Cronese to Mojave National Preserve to Shadow Valley to Death Valley National Park (the SAA from the Preferred Alternative).

Table IV.7-156 provides an impact analysis for these desert tortoise important areas, organized by desert tortoise Recovery Units: Colorado Desert, Eastern Mojave, and Western Mojave. Within the Colorado Desert Recovery Unit, approximately 7,000 acres of TCAs, linkage habitat, and high priority habitat would be impacted under Alternative 2. Within the Eastern Mojave Recovery Unit, approximately 3,000 acres of habitat would be impacted under Alternative 2. Within the Western Mojave Recovery Unit, approximately 19,000 acres of TCAs and linkage habitat would be impacted under Alternative 2.

Table IV.7-156
Plan-Wide Impact Analysis for Desert Tortoise Important Areas – Alternative 2

Recovery Unit	Desert Tortoise Important Areas	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Colorado Desert	High Priority Habitat	387,000	1,000	300	-	100	2,000
	Linkage	469,000	400	100	-	10	500
	TCA	3,130,000	800	300	-	4,000	5,000

Table IV.7-156
Plan-Wide Impact Analysis for Desert Tortoise Important Areas – Alternative 2

Recovery Unit	Desert Tortoise Important Areas	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Colorado Desert Total		*3,985,000*	*3,000*	*800*	-	*4,000*	*7,000*
Eastern Mojave	Linkage	784,000	2,000	400	-	300	2,000
	TCA	2,096,000	-	-	-	600	600
Eastern Mojave Total		*2,880,000*	*2,000*	*400*	-	*900*	*3,000*
Western Mojave	Linkage	1,204,000	7,000	2,000	-	3,000	12,000
	TCA	2,313,000	5,000	400	-	1,000	6,000
Western Mojave Total		*3,517,000*	*12,000*	*3,000*	-	*4,000*	*19,000*
Total		**10,382,000**	**16,000**	**4,000**	**-**	**9,000**	**29,000**

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
[2] Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Approximately 4,143,000 acres of USFWS-designated critical habitat for desert tortoise occurs in the Plan Area (excluding military, Open OHV Areas, and tribal lands). Although the TCAs include desert tortoise critical habitat, these two areas are not entirely the same geographically. Alternative 2 would result in approximately 10,000 acres (approximately 0.2% of the total critical habitat for desert tortoise in the Plan Area) of impact to desert tortoise critical habitat. Approximately 5,000 acres of impact would occur in the Chuckwalla critical habitat unit, and approximately 3,000 acres of impact would occur in the Fremont-Kramer critical habitat unit. Approximately 400 acres of impact from transmission development would occur in the Ivanpah critical habitat unit, approximately 700 acres of impact would occur in the Ord-Rodman critical habitat unit, and approximately 600 acres of impact from transmission development would occur in the Superior-Cronese critical habitat unit. As described in Volume II, transmission impacts assume resources are impacted within the entire right-of-way width that varies by transmission line voltage. Transmission development does not preclude the use of the area by tortoise, but does lead to the potential for increased risk of predation or striking by vehicles associated with access roads to support transmission lines.

Under Alternative 2, the CMAs would not prohibit the development of Covered Activities in the TCAs (AM-DFA-ICS-5 (Alternative 2)). Additionally under Alternative 2, the CMAs would require that impacts to desert tortoise linkage only limit impact to the minimum functionality within each linkage (AM-DFA-ICS-6 (Alternative 2)). Compensation CMAs would be required impacts to desert tortoise important areas.

Based on the impact analysis of Alternative 2, this alternative would result in adverse impacts to desert tortoise. The adverse impacts to desert tortoise under Alternative 2 are primarily a result of where renewable energy development would be allowed under this alternative (i.e., the DFA locations). Under Alternative 2, renewable energy development in DFAs could occur in numerous locations considered important for desert tortoise conservation, including but not limited to Desert Tortoise Research Natural Area and West Rand Mountains ACEC, the Fremont-Kramer critical habitat unit, the Ord-Rodman critical habitat unit, habitat linkages around Ord-Rodman, and habitat linkage areas in the Silurian Valley. Impacts to the Desert Tortoise Research Natural Area would result in the loss of over 30 years of science and research on desert tortoise that have been and continue to be conducted at this location, which would be considered an irreplaceable impact. In addition to the acreage of lost desert tortoise habitat, impacts in linkages have the potential to reduce or eliminate the linkage function at that geographic location, which cannot be replaced or compensated. The lost linkage function in these locations has the potential to isolate desert tortoise populations, which over time would lead to reduced individual fitness related to inbreeding, reduced genetic diversity, reduced resilience of subpopulations to threats, increased risk of extirpation within subpopulations, and a substantially reduced ability of the desert tortoise to recover in the Plan Area.

Flat-tailed Horned Lizard

For flat-tailed horned lizard, flat-tailed horned lizard (FTHL) management areas were identified in the FTHL Rangewide Management Strategy (RMS). The FTHL management areas cover approximately 393,000 acres in the Plan Area (excluding military, Open OHV Areas, and tribal lands) and include the following units: Borrego Badlands, East Mesa, Ocotillo Wells, West Mesa, and Yuha Basin. Approximately 6,000 acres of impact to FTHL management areas would result from Covered Activities under Alternative 2, in the East Mesa, Ocotillo Wells, West Mesa, and Yuha Basin units. Avoidance and minimization CMAs (AM-DFA-ICS-16 and AM-PW-1 through 17) would avoid and minimize impacts to flat-tailed horned lizard. Compensation CMAs would offset habitat loss for flat-tailed horned lizard.

Bendire's Thrasher

Bendire's thrasher habitat occurs in scattered locations across the Mojave and Sonoran/Colorado deserts of the Plan Area. As shown in Table IV.7-155, approximately 8,000 acres of impacts to habitat for Bendire's thrasher would occur under Alternative 2.

Avoidance and minimization CMAs (AM-DFA-ICS-17 and AM-PW-1 through 17) would avoid and minimize impacts to Bendire's thrasher. Compensation CMAs would offset habitat loss for Bendire's thrasher.

California Condor

California condor nesting has not been documented in the Plan Area and condor use of the Plan Area is limited to foraging and temporary roosting. As shown in Table IV.7-155, approximately 17,000 acres of impacts to potential foraging and temporary roosting habitat for California condor would occur throughout the Plan Area. As specified in AM-DFA-ICS-18, take of California condor will be avoided by Covered Activities. Additionally, the other condor CMAs (AM-DFA-ICS-19 through 25) and the Plan-wide avoidance and minimization CMAs (AM-PW-1 through 17) would further avoid and minimize impacts to California condor. Compensation CMAs would offset foraging and temporary roosting habitat loss for California condor.

Golden Eagle

In addition to the analysis of impacts to nesting and foraging habitat summarized in Table IV.7-155, a territory-based analysis was conducted for golden eagle(see methods and results in the Chapter IV.7 portion of Appendix R2). Using the golden eagle nest database, golden eagle territories were identified and individually buffered by 1 mile (representing breeding areas around known nests) and 4 miles (representing use areas around known nests). From the 420 nest locations known from the Plan Area, a total of 161 territories were identified in available lands of the Plan Area. Under Alternative 2, 50 territories have DFAs or transmission corridors within 1 mile of a nest. Implementation of the CMAs for golden eagles (AM-DFA-ICS-2) would prohibit siting or construction of Covered Activities within 1 mile of an active golden eagle nest; therefore, impacts within 1 mile of these golden eagle territories would be avoided. Under Alternative 2, 84 territories have DFAs or transmission corridors within 4 miles of nest, and the use area of these territories could be impacted through harassment, increased risk of striking hazards, and reduced foraging opportunities by Covered Activities depending of the siting of specific projects. The CMAs for golden eagles (Section II.3.1.2.5) and the approach to golden eagles (see Appendix H) describes how the impact to golden eagles would be avoided, minimized, and compensated. Based on the 2013 analysis, no more than 15 golden eagles per year in 2014 would be allowed to be taken within the Plan Area, which would be reassessed annually.

Desert Bighorn Sheep

For desert bighorn sheep, bighorn sheep mountain habitat and intermountain (linkage) habitat have been identified in the Plan Area. Under Alternative 2, approximately 13,000 acres of mountain habitat and 7,000 acres of intermountain habitat would be impacted.

These impacts would occur in the Pinto Lucerne Valley and Eastern Slopes, Cadiz Valley and Eastern Slopes, and Imperial Borrego Valley ecoregion subareas. Additionally, approximately 3,000 acres of these impact would occur within bighorn sheep mountain and intermountain habitat in the Silurian Valley, which is the location of the SAA from the Preferred Alternative. Avoidance, minimization, and compensation CMAs have been developed to offset the loss of habitat for bighorn sheep.

Although the Peninsular bighorn sheep Distinct Population Segment (DPS) is not a Covered Species, approximately 47,000 acres of USFWS-designated critical habitat for the Peninsular bighorn sheep DPS occurs in the Plan Area (excluding military, Open OHV Areas, and tribal lands). These critical habitat units include Carrizo Canyon and South Santa Rosa Mountain. Alternative 2would not result in any impacts to critical habitat for the Peninsular bighorn sheep DPS.

Mohave Ground Squirrel

Mohave ground squirrel important areas were identified that include key population centers, linkages, expansion areas, and climate change extension areas (see Mohave ground squirrel BGOs in Appendix C).

Under Alternative 2, impacts to key population centers and linkages for Mohave ground squirrel would occur primarily in the West Mojave – 1, West Mojave – 2, and West Mojave – 3 ecoregion subunits. Impacts to Mohave ground squirrel expansion areas would occur primarily in the West Mojave -2 ecoregion subunit and impacts to the climate change extension areas would occur only in a limited area of the Owens – 1 ecoregion subunit. The SAA from the Preferred Alternative in the West Mojave – 3 ecoregion subunit would be a DFA under Alternative 2, where approximately 2,000 acres of impact to Mohave ground squirrel key population centers and 1,000 acres of impact linkage habitat would occur.

Table IV.7-157 provides an impact analysis for these Mohave ground squirrel important areas. A total of 17,000 acres of impact to Mohave ground squirrel important areas would occur under Alternative 2. The CMAs would prohibit impacts that affect the viability of linkages (AM-DFA-ICS-36 through AM-DFA-ICS-43). Compensation CMAs would be required for impacts to Mohave ground squirrel, including Mohave ground squirrel important areas.

Based on the impact analysis of Alternative 2, this alternative would result in adverse impacts to Mohave ground squirrel. The adverse impacts to Mohave ground squirrel under Alternative 2 are primarily a result of where renewable energy development would be allowed under this alternative (i.e., the DFA locations). Under Alternative 2, renewable energy development in DFAs could occur in numerous locations considered important for Mohave ground squirrel conservation, including but not limited key population centers and

linkages in West Mojave – 1, West Mojave – 2, and West Mojave – 3 ecoregion subunits. In addition to the acreage of loss of Mohave ground squirrel habitat, impacts in linkages have the potential to reduce or eliminate the linkage function at that geographic location, which cannot be replaced or compensated. The lost linkage function in these locations has the potential to isolate key population centers for Mohave ground squirrel, which over time would lead to reduced individual fitness related to inbreeding, reduced genetic diversity, reduced resilience of subpopulations to threats, increased risk of extirpation within subpopulations, and a substantially reduced ability of Mohave ground squirrel to recover in the Plan Area.

Table IV.7-157
Plan-Wide Impact Analysis for Mohave Ground Squirrel
Important Areas – Alternative 2

Mohave Ground Squirrel Important Area Type	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Key Population Center	507,000	7,000	200	100	400	8,000
Linkage	386,000	4,000	90	400	300	5,000
Expansion Area	552,000	3,000	200	300	200	3,000
Climate Change Extension	224,000	600	200	100	300	1,000
Total	**1,669,000**	**14,000**	**700**	**900**	**1,000**	**17,000**

1 Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
2 Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Dune Covered Species[1]

Dune Covered Species include Mojave fringe-toed lizard. Although Table IV.7-155 shows impacts to Mojave fringe-toed lizard, impacts to the primary habitat areas used by these species would be avoided through the CMAs that require avoidance of and setbacks from dunes (AM-DFA-DUNE-1 through 3). Additionally, the Plan-wide and landscape-level

1 Flat-tailed horned lizard and plant Covered Species are also known to be associated with dunes but these species are addressed separately.

avoidance and minimization CMAs (AM-PW-1 through 17 and AM-LL-3) would further avoid and minimize impacts to dune Covered Species. Compensation CMAs would offset habitat loss for dune Covered Species.

Riparian and Wetland Covered Species[2]

Covered Species associated with riparian and wetland habitats include Tehachapi slender salamander, California black rail, Gila woodpecker, least Bell's vireo, southwestern willow flycatcher, tricolored blackbird, western yellow-billed cuckoo, Yuma clapper rail, Mohave tui chub, Owens pupfish, and Owens tui chub. Although Table IV.7-155 shows impacts to suitable habitat for some of these riparian and wetland Covered Species, impacts to the primary habitat areas used by these species would be avoided through the CMAs that require avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1 through 9). Additionally, the Plan-wide and landscape-level avoidance and minimization CMAs (AM-PW-1 through 17 and AM-LL-2) would further avoid and minimize impacts to riparian and wetland Covered Species. Compensation CMAs would offset habitat loss for these species.

Approximately 6,000 acres of USFWS-designated critical habitat for southwestern willow flycatcher occurs in the Plan Area (excluding military, Open OHV Areas, and tribal lands). These critical habitat units include Amargosa River, Mojave River, and Willow Creek. Alternative 2 would not result in any impacts to critical habitat for southwestern willow flycatcher.

Approximately 800 acres of USFWS-designated critical habitat for desert pupfish occurs in the Plan Area (excluding military, Open OHV Areas, and tribal lands). These critical habitat units include Carrizo Wash, Fish Creek Wash, and San Felipe Creek. Alternative 2 would not result in any impacts to critical habitat for desert pupfish.

The USFWS proposed to designate yellow-billed cuckoo critical habitat on August 15, 2014 at the time the DRECP Draft EIR/EIS was going to print. As such, the proposed yellow-billed cuckoo critical habitat was not addressed in the Draft EIR/EIS, but will be addressed in the Final EIR/EIS.

[2] Some of the riparian and wetland Covered Species discussed here also use other non-wetland and non-riparian natural communities.

Covered Species associated with Agricultural Lands[3]

Covered Species associated with agricultural lands include burrowing owl, greater sandhill crane, mountain plover, Swainson's hawk, and desert pupfish. As shown in Table IV.7-155, impacts to Covered Species associated with agricultural lands would occur, primarily in the Imperial Valley, Palo Verde Valley, and Antelope Valley. Specific surveys, setbacks, and other CMAs have been developed to avoid and minimize impacts of Covered Activities on these species (AM-DFA-AG-1 through 7). Compensation CMAs would offset habitat loss for these species.

Bat Covered Species

Bat Covered Species include California leaf-nosed bat, pallid bat, and Townsend's big-eared bat. As shown in Table IV.7-155, impacts to suitable habitat for bat Covered Species would occur throughout the Plan Area; however, impacts to roost sites and areas around roost sites would be avoided and minimized through the CMAs specific to bat species (AM-DFA-BAT-1). Additionally, the Plan-wide avoidance and minimization CMAs (AM-PW-1 through 17) would further avoid and minimize impacts to bat Covered Species. Compensation CMAs would offset habitat loss for these species.

Plant Covered Species

Plant Covered Species include alkali mariposa-lily, Bakersfield cactus, Barstow woolly sunflower, Desert cymopterus, Little San Bernardino Mountains linanthus, Mojave monkeyflower, Mojave tarplant, Owens Valley checkerbloom, Parish's daisy, and Triple-ribbed milk-vetch. As shown in Table IV.7-155, Alternative 2 would result in impact to suitable habitat for these species; however, the CMAs require surveys for plant Covered Species for all Covered Activities, and the CMAs requiring avoidance of and setbacks from occupied habitat (AM-DFA-PLANT-1 through AM-DFA-PLANT-3) would avoid the direct loss of habitat occupied by these species. Compensation CMAs would offset habitat loss for the plant Covered Species.

Approximately 2,000 acres of USFWS-designated critical habitat for Parish's daisy occurs in the Plan Area (excluding military, Open OHV Areas, and tribal lands). The critical habitat unit is the Northeast Slope. Alternative 2 would not result in any impacts to critical habitat for Parish's Daisy.

[3] Some of the Covered Species discussed here as associated with agricultural lands also use non-agricultural lands.

To avoid and minimize the potential loss of Covered Species from Covered Activities, a range of species-specific CMAs have been developed and are highlighted below:

- CMAs require habitat assessments for all Covered Activities and pre-construction surveys for Tehachapi slender salamander, Mojave fringe-toed lizard, desert tortoise, flat-tailed horned lizard, riparian and wetland bird Covered Species, burrowing owl, greater sandhill crane, Swainson's hawk, Bendire's thrasher, golden eagle, desert kit fox, Mohave ground squirrel, bat Covered Species, and plant Covered Species (see Section II.3.1.2.5.4 and Section II.3.1.2.5.5).
- Setbacks from individual species would be required from active nests of Bendire's thrasher, California condor, Gila woodpecker, and golden eagle.
- Covered Activities and other development in areas that potentially affect the amount of sand entering or transported within Aeolian transport corridors will be designed and operated to minimize mortality to Covered Species (AM-LL-3).
- In addition, a bird and bat use and mortality monitoring program will be implemented during operations using current protocols and best procedures available at time of monitoring. Covered Activities that are likely to impact bird and bat Covered Species during operation will develop and implement a project-specific Bird and Bat Operational Strategy (BBOS) that meets the approval of the appropriate DRECP Coordination Group (AM-LL-4).
- Covered Activities will include appropriate design features using the most current information from the Flat-tailed Horned Lizard Rangewide Management Strategy (RMS) and RMS Interagency Coordinating Committee (ICC) to reduce mortality (AM-DFA-ICS-15).
- If Bendire's thrasher are present, CMAs require biological monitoring to ensure that individuals are not directly affected by operations (i.e., mortality or injury, direct impacts on nest, eggs, or fledglings).
- For Covered Activities where ongoing take of eagles is anticipated, and take of eagles will be authorized under DRECP, federal regulations require that any authorized take must be unavoidable after the implementation of advanced conservation practices (ACPs) (AM-DFA-ICS-29). ACPs are "scientifically supportable measures" approved by the USFWS and represent the best available techniques to reduce eagle disturbance and ongoing mortalities to a level where remaining take is unavoidable" (50 CFR 22.3).
- CMAs also require monitoring and enforcement of vehicular restrictions and travel off designated routes to prevent mortality to Covered Species associated with dunes (AM-RES-BLM-DUNE-2).

Indirect and Terrestrial Operational Impact Analysis

Siting, construction, and operational Covered Activities could result in the potential disturbance, injury, and mortality of listed and sensitive wildlife from noise, predator avoidance behavior, as well as light and glare. The degree to which these factors contribute to the disturbance of sensitive wildlife corresponds to the distribution of Covered Activities in the Plan Area that would result in noise, predator avoidance behavior, or light and glare. As described in Section IV.7.2.1, the extent of some of these effects may exist at or beyond the source of these effects, the project footprint, or the project area depending on the type of effect and other environmental considerations. As such, the adverse effects caused by these factors would correspond to the overlap between the location of sensitive wildlife, represented by the Covered Species models, and the likely distribution of Covered Activities across subareas.

Under Alternative 2, approximately 13% of the total Plan Area, would be DFAs that allow renewable energy development. Based on the planned renewable energy generation and transmission under Alternative 2 (a total of 169,000 acres of impact), the creation of noise, predator avoidance behavior, as well as light and glare would collectively result in the terrestrial operational impacts shown in Table IV.7-155. These impacts would mostly occur in the West Mojave and Eastern Slopes, Imperial Borrego Valley, Cadiz Valley and Chocolate Mountains, and the Pinto Lucerne Valley and Eastern Slopes subareas. As a result, these subareas would have the greatest potential to create noise, predator avoidance behavior, and light and glare resulting in disturbance of sensitive wildlife.

Noise

Noise caused by mechanical equipment, vehicle usage, and human activities during siting, construction, and operations can cause physical damage such as hearing loss as well as behavioral changes in habitat use, activity patterns, reproduction, and foraging. Birds during the nesting seasons are expected to be particularly sensitive to noise effects from the siting, construction, and operation of renewable energy facilities. For bird Covered Species the West Mojave and Eastern Slopes and Imperial Borrego Valley are the subareas primarily affected, containing most of the total Plan-wide impacts to bird Covered Species habitat. Smaller mammals, such as the Mohave ground squirrel, and reptiles, such the Mojave fringe-toed lizard and flat-tailed horned lizard, could be adversely affected by intense noise (and related vibration that could collapse burrows), and potentially subject to increased predation if noise affects their ability to detect predators. Impacts to the habitat for these Covered Species mostly occurs in the West Mojave and Eastern Slopes subarea, and to a lesser extent in the Cadiz Valley and Chocolate Mountains as well as the Imperial Borrego Valley subareas. As such, the disturbance of wildlife from noise would

predominantly occur in the West Mojave and Eastern Slopes subarea and Imperial Borrego Valley subareas.

The disturbance and injury of wildlife from noise-related effects would also be reduce through the implementation of avoidance and minimization CMAs under Alternative 2. The CMA AM-PW-13 would reduce noise generated from Covered Activities using standard practices throughout the entire Plan Area. Additionally, various CMAs that would avoid and setback Covered Activities from noise-sensitive wildlife including seasonal setbacks for nesting birds; setbacks from riparian and wetland habitat benefitting bids, amphibians, and small mammals; and avoidance of Mohave ground squirrel's during operations (AM-DFA-RIPWET-1, AM-DFA-RIPWET-5, and AM-DFA-ICS-36). Therefore, potential disturbance of wildlife from noise during siting, construction, and operations would be minimized by these measures.

Predator Avoidance Behavior

Predator avoidance behavior can occur in some wildlife in response to human activities during operation and maintenance. Predator avoidance behavior can lead to increased physiological stress, reduced suitable foraging habitat, and can affect reproduction. Different wildlife species may have varying sensitivities to predator avoidance behavior and may experiences different magnitudes of responses to Covered Activities. Desert bighorn sheep use visual cues to assess and escape predators and may not utilize foraging habitat or water sources in proximity to Covered Activities. Other species that may experience behavioral changes that reduce foraging opportunities or lead to avoidance of suitable foraging habitat including nesting bird species. These wildlife species are spread throughout the Plan Area; however, the greatest amount of terrestrial operational impacts would be located in the West Mojave and Eastern Slopes and Imperial Borrego Valley subareas. The Cadiz Valley and Chocolate Mountains as well as the Pinto Lucerne Valley and Eastern Slopes would also experience fewer terrestrial operational impacts, and thus less potential predator avoidance behavior than that expected for the West Mojave and Eastern Slopes and Imperial Borrego Valley subareas.

Under Alternative 2, avoidance and minimization CMAs for siting Covered Activities away from sensitive wildlife habitat would be implemented for riparian and wetland habitat, wildlife species that inhabit agricultural lands, and for particular species such as the Mohave ground squirrel (AM-DFA-RIPWET-1, AM-DFA-RIPWET-5, AM-DFA-AG-2, and AM-DFA-ICS-36). Additional CMAs would inform workers of actions that could potentially induce predator avoidance behavior and restrict activities that could disturb wildlife and their access to water and foraging habitat (AM-PW-5, AM-PW-13, AM-RES-RL-DUNE-2, and AM-RES-RL-ICS-14). The potential disturbance of wildlife from predator avoidance

behavior caused by siting, construction, and operational Covered Activities would be minimized by these measures.

Light and Glare

Light and glare are created by Covered Activity development which involves both light for security and to avoid aviation collisions and glare from reflective surfaces. Exposure of wildlife to light and glare can alter wildlife behavior including foraging, migration, and breeding. Solar projects would produce increased levels of glare due to the large amount of reflective panel or heliostat surfaces and would have greater effects on wildlife than other renewable energy technologies. Potential adverse effects associated with light and glare from solar projects, including solar flux and bird collisions from the lake effect are analyzed in BR-9. As described above, based on the planned renewable energy generation and transmission under Alternative 2, terrestrial operational impacts would mostly occur in the West Mojave and Eastern Slopes and Imperial Borrego Valley. Similarly, impacts from solar projects throughout the Plan Area would primarily occur in the West Mojave and Eastern Slopes, Imperial Borrego Valley, and Cadiz Valley and Chocolate Mountains subareas.

Lighting can act through various biological mechanisms and can result in greatly different adverse effects to individual species. Diurnal predators, such as bats and insectivorous birds may exploit night lighting that increases prey detectability, while nocturnal prey species may reduce their foraging activity in lighted areas. Impacts to habitat for bats from Covered Activities would mainly be located in the West Mojave and Eastern Slopes, Cadiz Valley and Chocolate Mountains, and Imperial Borrego Valley subareas and to a lesser extent in the Pinto Lucerne Valley and Eastern Slopes subarea. Migratory birds that fly during the night may be affected by aviation safety lighting on high structures such as met towers and turbines. For bird Covered Species the West Mojave and Eastern Slopes and Imperial Borrego Valley are the subareas primarily affected, containing most of the total Plan-wide impacts to bird Covered Species habitat. Therefore, considering the distribution of potential renewable energy development and impacts on modeled habitat for species sensitive from light and glare the largest magnitude of wildlife disturbance is expected to occur in the West Mojave and Eastern Slopes and Imperial Borrego Valley subareas.

Alternative 2 would implement avoidance and minimization CMAs specifically intended to reduce effects of lighting and glare including AM-PW-14, which would implement standard practices for shielding and reducing the use of lights, as well as AM-DFA-RIPWET-4, which specifically restricts lighting within one mile of riparian or wetland vegetation. Furthermore, the appropriate siting and design of Covered Activities away from sensitive wildlife habitat would reduce disturbance from lighting and glare. Under Alternative 2, avoidance and minimization CMAs for siting Covered Activities away from wildlife that would be sensitive to the adverse effects of lighting and glare would be implemented for

riparian and wetland habitat, wildlife species that inhabit agricultural lands, and for smaller mammals (AM-DFA-RIPWET-1, AM-DFA-RIPWET-5, and AM-DFA-AG-2). These measures would minimize potential disturbance of wildlife from lighting and glare.

Non-Covered Species Impact Analysis

Table IV.7-158 provides an estimation of the impacts to natural communities associated with Non-Covered Species. While estimation of impacts to natural communities likely overestimates the potential impacts to Non-Covered Species habitats, it provides a general range of level of impact.

Impacts to the dune community, riparian communities, arid west freshwater emergent marsh, and Californian warm temperate marsh/seep would be avoided through implementation of CMAs, so impacts to potential habitat for each of these species is likely greater than would actually occur. For some species, impacts would be minimized through avoidance of the specific natural communities required for those species, e.g., dune-, spring-, or cave-restricted invertebrates, or riparian-obligate bird or amphibian species. The total potential impact to natural communities and habitat across all technology types before application of CMAs is less than 1%, with the exception of grasslands at approximately 2.1% and agricultural/rural land cover at approximately 5.8% (see Table IV.7-158).

USFWS-designated critical habitat occurs within the Plan Area (excluding military, Open OHV Areas, and tribal lands) for the following Non-Covered Species:

- Approximately 1,000 acres for Amargosa nitrophila
- Approximately 4,000 acres for the Amargosa vole
- Approximately 4,000 acres for the Arroyo Toad
- Approximately 300 acres for the Ash Meadows gumplant
- Approximately 600 acres for the Cushenbury buckwheat
- Approximately 1,000 acres for the Cushenbury milk-vetch
- Approximately 100 acres for the Cushenbury oxytheca
- Approximately 14,000 acres for the Lane Mountain milk-vetch
- Approximately 3,400 acres for the Pierson's milk-vetch
- Approximately 47,000 acres for the Peninsular bighorn sheep

Under the Alternative 2, impacts to approximately 30 acres of Lane Mountain milk-vetch critical habitat would have the potential to occur from transmission. This calculation of

impacts from transmission is derived from the transmission corridors overlapped with designated critical habitat, thus resulting is an overestimation of actual ground disturbance.

The results of impacts on Non-Covered Species from the creation of noise, predator avoidance behavior, and light and glare would be similar to those described for the Covered Species.

Table IV.7-158
Plan-Wide Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 2

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
California forest and woodland/ Desert conifer woodlands	Coast horned lizard, grey vireo, loggerhead shrike, yellow warbler, American badger, bighorn sheep, fringed myotis, hoary bat, long-eared myotis, pocketed free-tailed bat, spotted bat, Tehachapi pocket mouse, western mastiff bat, western small-footed myotis, Amargosa beardtongue, Charlotte's phacelia, creamy blazing star, Cushenbury buckwheat, Cushenbury milk-vetch, Cushenbury oxytheca, Kern buckwheat, Piute Mountains jewel-flower, purple-nerve cymopterus, San Bernardino Mountains dudleya, short-joint beavertail cactus, Spanish needle onion, Tracy's eriastrum, Cushenbury buckwheat	365,000	800	300	0	100	1,200	0.3%
Desert Scrub/ Chaparral Communities	Arroyo toad, banded gila monster, Coast horned lizard, Colorado Desert fringe-toed lizard, Couch's spadefoot, rosy boa, bald eagle, bank swallow, Crissal thrasher, Ferruginous hawk, gilded flicker, grey vireo, Le Conte's thrasher, loggerhead shrike, long-eared owl,	13,328,000	58,000	12,000	7,000	17,000	94,000	0.7%

Table IV.7-158
Plan-Wide Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 2

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	Lucy's warbler, northern harrier, yellow warbler, American badger, Arizona myotis, big free-tailed bat, bighorn sheep, cave myotis, fringed myotis, hoary bat, long-eared myotis, Palm Springs pocket mouse, pocketed free-tailed bat, spotted bat, Tehachapi pocket mouse, western mastiff bat, western small-footed myotis, western yellow bat, yellow-eared pocket mouse, Yuma myotis, Algodones Dunes sunflower, Ash Meadows gum plant, Amargosa beardtongue, bare- stem larkspur, Charlotte's phacelia, Cima milk-vetch, Coachella Valley milk-vetch, creamy blazing star, Cushenbury buckwheat, Cushenbury milk-vetch, Cushenbury oxytheca, desert pincushion, Emory's crucifixion-thorn, flat-seeded spurge, forked buckwheat, Harwood's eriastrum, Harwood's milkvetch, Inyo County star-tulip, Kelso Creek monkeyflower, Kern buckwheat, Las Animas colubrina, Lane Mountain Milk-Vetch, Mojave Desert plum,							

Table IV.7-158
Plan-Wide Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 2

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	Mojave milkweed, Munz's Cholla, nine-awned pappus grass, Orcutt's woody aster, Orocopia sage, Parish's club cholla, Pierson's milk-vetch, pink fairy-duster, Piute Mountains jewel-flower, purple-nerve cymopterus, Red Rock poppy, Red Rock tarplant, Robinson's monardella, Rusby's desert-mallow, sand food, Sodaville milk-vetch, short-joint beavertail cactus, Spanish needle onion, Thorne's buckwheat, Tracy's eriastrum, Utah beardtongue, white bear poppy, White-margined beardstongue, Wiggin's croton, Flat-seeded spurge, Parish's phacelia, Parish's alkali grass							
Dunes[3]/ Desert Outcrop and Badlands	Banded gila monster, barefoot gecko, Coast horned lizard, Colorado Desert fringe-toed lizard, Couch's spadefoot, rosy boa, bald eagle, bank swallow, Le Conte's thrasher, loggerhead shrike, long-eared owl, northern harrier, Amargosa vole, big free-tailed bat, bighorn sheep, cave myotis, bat, spotted bat, western	3,508,000	4,000	1,000	600	3,000	8,600	0.2%

Table IV.7-158
Plan-Wide Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 2

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	mastiff bat, Yuma myotis, Algodones Dunes sunflower, Ash Meadows gum plant, Amargosa beardtongue, Amargosa niterwort, Charlotte's phacelia, Cima milk-vetch, Coachella Valley milk-vetch, creamy blazing star, desert pincushion, Emory's crucifixion-thorn, flat-seeded spurge, forked buckwheat, Harwood's eriastrum, Harwood's milkvetch, Inyo County star-tulip, Las Animas colubrina, Mojave Desert plum, Mojave milkweed, nine-awned pappus grass, Orcutt's woody aster, Orocopia sage, Palmer's jackass clover, Parish's club cholla, Pierson's milk-vetch, pink fairy-duster, purple-nerve cymopterus, Red Rock poppy, Red Rock tarplant, Robinson's monardella, Rusby's desert-mallow, sand food, Spanish needle onion, Thorne's buckwheat, Utah beardtongue, white bear poppy, Wiggin's croton, Palmer's jackass clover, white-margined beardtongue, flat-seeded spurge							

Table IV.7-158
Plan-Wide Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 2

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
Grassland	Coast horned lizard, American peregrine falcon, bank swallow, Ferruginous hawk, long-eared owl, northern harrier, white-tailed kite, Amargosa vole, American badger, spotted bat, Cushenbury milk-vetch, Cushenbury oxytheca, short-joint beavertail cactus	238,000	4,000	500	0	500	5,000	2.1%
Riparian/ Wetlands	Arroyo toad, California red-legged frog, Coast horned lizard, Couch's spadefoot, Western pond turtle, American peregrine falcon, Arizona Bell's vireo, bald eagle, bank swallow, Crissal thrasher, gilded flicker, elf owl, Inyo California towhee, loggerhead shrike, long-eared owl, Lucy's warbler, northern harrier, redhead, vermillion flycatcher, white-tailed kite, yellow-breasted chat, yellow-headed blackbird, yellow warbler, Amargosa vole, Mojave River vole, Arizona myotis, cave myotis, fringed myotis, hoary bat, long-eared myotispocketed free-tailed bat, spotted bat, western mastiff bat,	1,652,000	4,000	500	0	500	5,000	0.3%

Table IV.7-158
Plan-Wide Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 2

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	western yellow bat, Yuma myotis, Ash Meadows gum plant, Inyo County star-tulip, Parish's alkali grass, Parish's phacelia, Amargosa pupfish, Amargosa speckled dace, Amargosa spring snails							
Agriculture/ Rural Land Cover	American peregrine falcon, Bank swallow, loggerhead shrike, long-eared owl, northern harrier, redhead, yellow-headed blackbird, yellow warbler, Arizona myotis, hoary bat, Tehachapi pocket mouse, western mastiff bat, western yellow bat	825,000	28,000	900	9,000	10,000	47,900	5.8%

1 Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

2 Solar impacts include ground-mounted distributed generation.

3 Impacts to the dune community, riparian communities, arid west freshwater emergent marsh, and Californian warm temperate marsh/seep would be avoided through implementation of CMAs. Only impacts determined to be unavoidable would occur in these natural communities.

4 This amount assumes the loss of conservation value for all land fragmented by the wellfields.

Notes: The natural community classification system is described in Chapter III.7 and follows CDFG 2012. Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Impact BR-5: Siting, construction, decommissioning, and operational activities could result in loss of nesting birds (violation of the federal Migratory Bird Treaty Act and California Fish and Game Code Sections 3503, 3503.5, 3511, and 3513).

Siting, construction, decommissioning, and operations of renewable energy and transmission projects would result in the removal of vegetation and other nesting habitat and cause increased human presence and noise that has the potential to cause the loss of nesting birds, which would be a violation of the federal Migratory Bird Treaty Act and the California Fish and Game Code. The potential loss of nesting birds resulting from these activities would be adverse without application of CMAs. Avoidance and minimization CMAs (AM-PW-4, 13, 14; AM-DFA-RIPWET-1, 3, 5; AM-DFA-AG-1 through 6; AM-DFA-ICS CMAs for bird species) include the season restrictions, survey requirements, and setbacks necessary to avoid and minimize the loss of nesting birds.

Impact BR-6: Siting, construction, decommissioning, and operational activities would adversely affect habitat linkages and wildlife movement corridors, the movement of fish, and native wildlife nursery sites.

The following provides an analysis of the impacts of the development of Covered Activities on habitat linkages and wildlife movement in the Plan Area. Species-specific habitat linkages and wildlife movement areas are a component of analysis conducted under Impact BR-4 above. Suitable habitat for each species includes areas of habitat linkages and wildlife movement. Analysis under BR-4 specifically incorporates habitat linkage information for desert tortoise, Mohave ground squirrel, and desert bighorn sheep. In addition to the species-specific analysis of impacts to suitable habitat supporting habitat linkages and wildlife movement for species, landscape level information on habitat linkages (i.e., Desert Linkage Network) and migratory bird movement are analyzed below.

Desert Linkage Network

The desert linkage network is a comprehensive and detailed habitat connectivity analysis for the California deserts identified "swaths" of habitat of uniform physical conditions that will interact with uncertain climate changes to maintain habitat for species and species' movement (Penrod et al. 2012, as cited in Appendix Q). Figures III.7-26 through III.7-36 in Chapter III.7 of Volume III shows the desert linkage network for the Plan Area and in each ecoregion subarea.

Table IV.7-159 shows the impact analysis for the desert linkage network for Alternative 2. Overall, over 34,000 acres of desert linkage network could be adversely impacted in DFAs and transmission corridors in nine different subareas.

In the Cadiz Valley and Chocolate Mountains subarea, DFAs are located in the portion of the desert linkage network that connects the Colorado River to the northern part of the McCoy Mountains. There are also DFAs in the linkage network that extends along the McCoy Mountains and connects south to the Palo Verde Mesa. There are also DFAs in the Palen Valley portion of a linkage network that extends south to the northern foothills of the Chocolate Mountains. There are also small DFAs in the linkage along the Colorado River around Vinagre Wash. Numerous generally north-south habitat linkages cross the I-10 corridor area between Desert Center and Blythe in this subarea. DFAs under Alternative 2 overlap these habitat linkages and would have the potential to result in adverse impacts to general terrestrial wildlife movement. The existing I-10 corridor is a substantial barrier to movement for many species and the development of renewable energy both north and south of the I-10 corridor would further reduce the numbers and size of wildlife crossing locations, which has the potential to further fragment habitat, reduce gene flow, and isolate populations. Under Alternative 2, the CMAs would not require avoidance and minimization of impacts to habitat linkages or maintenance of linkage function (AM-LL-1 (Alternative 2)).

In the Imperial Borrego Valley, there are DFAs in the northern portion of the desert linkage network that extends along East Mesa from east of the Imperial Valley north toward the Coachella Canal. There are also DFAs in the area that connects the southern end of the Chocolate Mountains. General terrestrial wildlife movement may be affected locally by the development of Covered Activities in these DFAs; however, the siting of DFAs, the reserve design, and the CMAs related to wildlife movement and Covered Species would offset the impacts on general terrestrial wildlife movement.

In the Mojave and Silurian Valley subarea, there are DFAs in the Mojave Valley in a linkage that connects the area around Barstow to the Calico Mountains and east along and south of the Mojave River. In the Mojave and Silurian Valley and Kingston and Funeral Mountains subareas, there is a DFA that has the potential to adversely impact wildlife movement that connects the Silurian Valley to the Turquoise Mountain area (SAA in the Preferred Alternative), which is an important linkage area for bighorn sheep and desert tortoise as assessed under BR-4. There is also a small DFA in the linkage that connects the Lava Mountains with Red Mountain. General terrestrial wildlife movement may be affected locally by the development of Covered Activities in these DFAs, which has the potential to fragment habitat, reduce gene flow, and isolate populations. Under Alternative 2, the CMAs would not require avoidance and minimization of impacts to habitat linkages or maintenance of linkage function (AM-LL-1 (Alternative 2)).

In the Owens River Valley, there are DFAs in the desert linkage network that connects the Haiwee Reservoir to Indian Wells. There is a DFA in the Searles Valley that would impact the linkage between the Searles Range and Argus Range in the Panamint Death Valley

subarea. DFAs are not located in the desert linkage network corridors elsewhere in these ecoregion subareas. General terrestrial wildlife movement may be affected locally by the development of Covered Activities in these DFAs, which has the potential to fragment habitat, reduce gene flow, and isolate populations. Under Alternative 2, the CMAs would not require avoidance and minimization of impacts to habitat linkages or maintenance of linkage function (AM-LL-1 (Alternative 2)).

In the Pinto Lucerne Valley and Eastern Slopes subarea, there are DFAs in the desert linkage network that connects the Grapevine Canyon Recreation Lands to the Granite Mountains in Lucerne Valley. DFAs are also located in the habitat linkage between the Ord Mountains and the Granite Mountains. A DFA occurs in the connection between the Mojave River and Quartzite Mountain. There are also DFAs in the linkage that connects the Little Morongo Canyon to the area around Emerson Lake and in the linkage that connects the San Bernardino Mountains to the Fry Mountains. Development in these linkage areas would limit or degrade the ability of species, including bighorn sheep and other terrestrial mammals, to move from the surrounding mountains to the desert floor and other adjoining mountains. DFAs under Alternative 2 overlap these habitat linkages and would have the potential to result in adverse impacts to terrestrial wildlife movement, which has the potential to further fragment habitat, reduce gene flow, and isolate populations. Under Alternative 2, the CMAs would not require avoidance and minimization of impacts to habitat linkages or maintenance of linkage function (AM-LL-1 (Alternative 2)).

In the Providence and Bullion Mountains there is a DFA in the area northeast of the Twentynine Palms Marine Corps Base. DFAs are not located in the desert linkage network corridors elsewhere in this subarea. General terrestrial wildlife movement may be affected locally by the development of Covered Activities in these DFAs; however, the siting of DFAs, the reserve design, and the CMAs related to wildlife movement and Covered Species would offset the impacts on general terrestrial wildlife movement.

In the West Mojave and Eastern Slopes subarea, there are DFAs in the linkage that connects the area around Baldy Mesa along the southern edge of the Plan Area to Helendale. DFAs are also in the linkage between the Kern County line and Fremont Wash. DFAs also occur in the Brisbane Valley and in the linkages around Barstow. There is a DFA along the Highway 395 corridor north of Kramer Junction (SAA in the Preferred Alternative) that has the potential to adversely impact wildlife movement, including Mohave ground squirrel and desert tortoise. In the Fremont Valley area around California City, DFAs are located in linkages between Edwards Air Force Base the Tehachapi Mountains that could adversely affect wildlife movement. There are also DFAs in the linkages in the Indian Wells Valley area, which could adversely impact movement for Mohave ground squirrel between its most northern population and the rest of its range. DFAs under Alternative 2 overlap these habitat linkages and would have the potential to result in adverse impacts to general

terrestrial wildlife movement which has the potential to further fragment habitat, reduce gene flow, and isolate populations. Under Alternative 2, the CMAs would not require avoidance and minimization of impacts to habitat linkages or maintenance of linkage function (AM-LL-1 (Alternative 2)).

Although the reserve design envelope for Alternative 2 was developed, in part, to conserve and avoid impacts to habitat linkages and wildlife movement, including the desert linkage network, the DFAs under Alternative 2 are proposed in geographic locations important for the movement of wildlife and in locations that, if developed, could not be replaced or compensated. Additionally, the CMAs under Alternative 2 would not require avoidance and minimization of impacts to habitat linkages or maintenance of linkage function (AM-LL-1 (Alternative 2)). The potential for dispersed development across the Plan Area under Alternative 2 would reduce the probability of maintaining a connected, unfragmented landscape, and it is anticipated that populations would become isolated and that more human intervention and management would be needed (i.e. assisted migration, population augmentation) to maintain populations.

Table IV.7-159
Plan-Wide Impact Analysis for the Desert Linkage Network – Alternative 2

Desert Linkage Network by Ecoregion Subarea	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Cadiz Valley and Chocolate Mountains	890,000	5,000	1,000	-	4,000	10,000
Imperial Borrego Valley	156,000	3,000	1,000	700	30	4,000
Kingston and Funeral Mountains	174,000	200	50	-	400	600
Mojave and Silurian Valley	507,000	1,000	200	-	500	2,000
Owens River Valley	19,000	100	10	200	200	500
Panamint Death Valley	206,000	80	10	-	10	100
Pinto Lucerne Valley and Eastern Slopes	291,000	2,000	1,000	-	2,000	5,000

Table IV.7-159
Plan-Wide Impact Analysis for the Desert Linkage Network – Alternative 2

Desert Linkage Network by Ecoregion Subarea	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Piute Valley and Sacramento Mountains	152,000	-	-	-	-	-
Providence and Bullion Mountains	426,000	800	400	-	200	1,000
West Mojave and Eastern Slopes	860,000	9,000	500	-	200	10,000
Total	**3,682,000**	**21,000**	**4,000**	**900**	**8,000**	**35,000**

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
[2] Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Migratory Birds

Migration patterns across the Plan area are discussed, along with impacts associated with each technology in the typical impacts section (Section IV.7.2.1.3) and quantification of operational impacts to avian and bat species are discussed in BR-9. The following analysis focuses on the anticipated distribution of different technology types in relation to known migratory corridors and migratory resources in each subarea.

In the Alternative 2, wind generation is moderate proportion of the overall generation mix with approximately equal quantities of development divided between the West Mojave and Eastern Slopes, Pinto Lucerne Valley and Cadiz and Chocolate Mountain ecoregion subareas, and smaller quantities anticipated in all other subareas except Piute Valley and Sacramento Mountains. Wind development would occur on the eastern slopes of the Tehachapi Mountains and in the mountainous areas around Lucerne Valley. Key bird migration areas affected would include routes between the Tehachapi and San Bernardino passes, and the dry lakes and wetland refuges on and to the north of Edwards AFB, including the North Mojave dry lakes of China Lake, Koehn Lake, Harper Lake and Searles

Lake. Further, direct loss of habitat in Antelope Valley would lead to loss of habitat for wintering birds. Wind development in the Cadiz and Chocolate Mountains subarea would occur to the north of the I-10 and in McCoy Valley. These areas are adjacent to the Colorado River migratory corridor, and may affect migratory bird movement to and from the Coachella Valley. Small quantities of wind development in Imperial Borrego Valley ecoregion subarea would occur in the southeast of the Chocolate Mountains.

Solar development would be expected throughout the West Mojave and Eastern slopes, Pinto Lucerne Valley, Cadiz and Chocolate Mountain and Imperial Borrego Valley subareas. Considerably less solar impact would occur in the Kingston and Funeral Mountains subarea. Alternative 2 would result in new solar PV and solar thermal facilities along the I-10 corridor to the west side of the Colorado River, and in agricultural lands west of Blythe, and in undisturbed lands in McCoy Valley. Anticipated development in Chuckawalla Valley, west of Blythe and in McCoy Valley would result in a 2.7- increase in solar facilities when compared to baseline. This would increase hazards on the migratory linkages for birds between the Colorado River, and the Coachella Valley, and would impact both Covered Species and other migratory birds. Similarly, development in the West Mojave and Eastern Slopes subarea would result in a 3.5-fold increase in solar facilities. In particular DFAs near Koehn dry lake and Harper Dry Lake would present hazards to migratory birds using these features as stopovers. Further, the Pinto Lucerne Valley subarea would be developed where previously it has not been the focus of development. Impacts are likely to occur in DFAs between the San Bernardino Mountain passes, and dry lakes on Edwards AFB, as well as, the North Mojave dry lakes of China Lake, Harper Lake. Development around the Salton Sea and in the Imperial Valley would be on the southern, western and eastern shores. As discussed in BR-4, impacts from solar development are likely to result in a four-fold increase in solar facilities when compared to baseline impacts. Development would lead to direct loss of foraging habitat for wintering and resident birds in the agricultural lands south of the Salton Sea, and would create facilities across the landscape that mimic open water. Such facilities would adversely affect the behavior migratory birds, and would result increased mortality. Small quantities of solar development is anticipated in the Mojave Silurian Valley and Providence and Bullion Mountains subareas, these developments would be to the west of Barstow, and less likely to impact migratory corridors than other developments, although they could affect birds using Harper Dry. Small quantities of solar development in DFAs near Searles Dry Lake could impact migratory birds using this as areas as a stopover

Application of CMAs would require projects to be sited and designed to avoid impacts to occupied and suitable habitat for Covered Species, to the maximum extent feasible. Siting and construction CMAs require setbacks from riparian and wetland habitats which would minimize direct loss. Compensation CMAs would offset habitat loss for Covered Species. A bird and bat use and mortality monitoring program would be implemented during

operations. Any proposed projects that are likely to impact bird and bat Covered Species during operation would develop and implement a project-specific Bird and Bat Covered Species Operational Actions that meets the approval of the appropriate DRECP Coordination Group.

Although these CMAs would be in place under Alternative 2, the DFAs are sited in locations that would result in impacts to migratory birds in locations that cannot be avoided, minimized, and compensated given the potential for fragmentation, isolation, and disruption of migratory patterns that would result from this alternative.

Impact BR-7: Siting, construction, decommissioning, and operational activities would result in habitat fragmentation and isolation of populations of listed and sensitive plants and wildlife.

The siting, construction, decommissioning and operation of renewable energy and transmission projects can have the potential to fragment intact and interconnected landscapes resulting in isolated patches of habitat, isolated species populations, reduced gene flow, and remaining habitat that is more exposed to the edge effects of adjacent developments.

Renewable energy development would be restricted to DFAs under the DRECP; therefore, Alternative 2 would allow the siting of renewable energy development only within approximately 13% of the available lands in Plan Area (2,473,000 acres of DFAs). Of which, siting and construction of renewable energy development would result in ground disturbance to less than 1% of the available lands in the Plan Area (approximately 169,000 acres).

In conjunction with DFA siting, the DRECP integrated planning process identified Reserve Design Lands within which renewable energy development would be prohibited and conservation would occur. As described below under Impacts of the Reserve Design, the DRECP Plan-Wide Reserve Design Envelope for Alternative 2 covers 15,087,000 acres of the Plan Area (79% of the available lands in the Plan Area); therefore, 79% of the available lands in the Plan Area would not have the potential to be affected by fragmentation or population isolation impacts from Covered Activities.

In order to minimize habitat fragmentation and population isolation, most DFAs under Alternative 2 were sited in less intact and more degraded areas; however, some DFAs under Alternative 2 do not avoid sensitive resource or intact landscapes because these areas were identified through public scope as priority for the development of renewable energy. Based on the terrestrial intactness analysis developed for the DRECP area, approximately 78% of the DFAs in Alternative 2 are characterized by low or moderately low intactness. Although many of the DFAs are in locations with existing habitat

fragmentation and population isolation such that development of Covered Activities in these areas would not appreciably contribute to additional effects, some of the DFAs in this alternative are in direct conflict with landscape intactness, critical populations, and/or key connectivity corridors. See Impact BR-6 for an analysis of the effects of this alternative on wildlife movement.

Other measures of fragmentation and population isolation effects include the amount of impacts on environmental gradients. Environmental gradients are spatial shifts in physical and ecological parameters across a landscape. Environmental gradients are influenced by factors such as temperature, precipitation, wind, and solar exposure that vary with physical factors such as elevation, latitude, slope, and aspect. The impact analysis addresses four types of environmental gradients in the Plan Area: elevation, landforms, slope, and aspect.

Elevation:

Under Alternative 2, 98% of the impacts from Covered Activities would occur in DFAs below 4,000 feet, including 56% of the impacts occurring below 1,000 feet and 36% between 2,000 and 4,000 feet. As the majority of impacts occur in DFAs below 4,000 feet, impacts will be greater to natural communities that occur below this elevation such as desert scrub natural communities as compared to natural communities that occur at higher elevations.

Approximately 95% of geothermal impacts are at elevations below 1,000 feet, including 61% below sea level. Solar impacts also tend to be concentrated in the lower elevations, with 85% of impacts below 3,000 feet. Wind impacts tend to be at higher elevations, with 52% of impacts at elevations above 2,000 feet. Approximately 26% of transmission impacts would be between 2,000 and 4,000 feet elevation. Habitat fragmentation, population isolation and gene flow impacts would be concentrated at lower elevations, which has the potential to reduce the potential for successful species range shifts, contractions, and expansions for lower elevation Covered Species and natural communities in response to climate change. As Alternative 2 would impact less than 1% of all available land within the Plan Area, any impacts to successful species range shifts, contractions, and expansions will be relatively minor.

Landforms:

Landforms in the Plan Area include canyons/deeply incised streams, mountain tops/high ridges, open slopes, and plains. Under Alternative 2, the vast majority (95%) of impacts within DFAs would occur to plains, with these impacts spread across the different impact types, including 63% from solar, 9% from wind, 11% from geothermal, and 17% from transmission.

Habitat fragmentation, population isolation and gene flow impacts would be concentrated in plains, which has the potential to reduce the potential for successful species range shifts, contractions, and expansions for Covered Species and natural communities associated with plains in response to climate change. As Alternative 2 would impact less than 1% of all available land within the Plan Area, any impacts to successful species range shifts, contractions, and expansions will be relatively minor.

Slope:

Under Alternative 2, total impacts within DFAs would be progressively less with increasing slope. The large majority (89%) of impacts would occur on slopes less than 5%, and 98% of impacts would occur on slopes up to 20%. On slopes less than 20%, impacts would be spread across the different impacts types, including 63% from solar, 9% from wind, 11% from geothermal, and 17% from transmission. Habitat fragmentation, population isolation, and gene flow impacts would be concentrated on slopes less than 20%, which has the potential to reduce the potential for successful species range shifts, contractions, and expansions for Covered Species and natural communities that inhabit lower slopes in response to climate change. As Alternative 2 will impact less than 1% of all available land within the Plan Area, any impacts to successful species range shifts, contractions, and expansions will be relatively minor.

Aspect:

Under Alternative 2, impacts within DFAs would generally be well distributed among the different aspects Impacts from solar, geothermal, wind, and transmission would have similar distributions across the different aspects compared to overall impacts. By distributing the impacts across all aspects, there is a less potential to interrupt species movement and gene flow for species that occur within any one aspect.

Siting, construction, decommissioning, and operation of the renewable energy and transmission projects has the potential to result in adverse fragmentation and population isolation effects, but these effects are avoided and minimized through the DFAs and reserve design envelope, as well as through the implementation of avoidance and minimization CMAs (AM-LL-1 (Alternative 2) through AM-LL-4). Although these CMAs would be in place under Alternative 2, the DFAs are sited in locations that would result in impacts to migratory birds in locations that cannot be avoided, minimized, and compensated given the potential for fragmentation, isolation, and disruption of migratory patterns that would result from this alternative.

Impact BR-8: Construction of generation facilities or transmission lines would result in increased predation of listed and sensitive wildlife species.

Higher predator densities and hence high predation rates are a documented effect of increased human development in the Plan Area. The extent to which Covered Activities contribute to increasing predation through phenomena like predator subsidization is linked to the likely extent of Covered Activities in undisturbed parts of desert.

Agricultural landscapes in the west Mojave, Lucerne Valley, east of Barstow, in Imperial Borrego Valley and west of Blythe are already disturbed, with relatively high levels of human activity that supplement predators such as ravens and coyotes, and support covered predator species such as burrowing owls and Swainson's hawk. Therefore, covered operational activities in already disturbed rural and agricultural landscapes are would result in a little increase in predation.

However, Covered Activities in undisturbed desert habitat are likely to disproportionately supplement predators, increase predator density and consequently increase predation rates on Covered Species. Alternative 2 would result 119,000 acres of permanent conversion of natural desert communities with 50,000 acres of impacts (30% of the total ground disturbance) within areas characterized by disturbed land cover types.

All impacts in the Kingston and Funeral Mountains and the Providence and Bullion Mountains subareas would be in natural communities and therefore more likely to increase predation rates on susceptible species like desert tortoise, Mojave fringe-toed lizard, and nesting birds species. Much of the development in the Cadiz and Chocolate Mountains subarea, would be expected in the BLM Solar SEZ area adjacent to the I-10 corridor. This area may already experience increased predator densities as a consequence of human development, the additional impact of further development would therefore be attenuated. However, development in more remote parts to the subarea would likely increase predation. Population growth for desert tortoise is precarious, and development in remote, largely undeveloped, portions of the Plan Area under Alternative 2 has the potential to increase mortality rates for desert tortoise.

Wind and solar development in the West Mojave and Eastern Slopes and the Pinto Lucerne Valley and Eastern Slopes subareas may supplement predators in undisturbed environments. In these areas, susceptible species would include nestlings and eggs of Covered Species like tricolored blackbird and golden eagle, as well as small reptiles like the Tehachapi slender salamander and mammals like the Mohave ground squirrel. In particular, any development in suitable MGS habitat within the extensive DFAs to North of Edwards AFB are likely to negatively affect Mohave ground squirrel by reducing juvenile survival rates, reducing juvenile dispersal, reducing metapopulation dynamics, and ultimately reducing recruitment rates for several of the key population centers.

Application of a Common Raven management plan (AM-PW-6), approved by the appropriate DRECP Coordination Group would reduce project activities that increase predator subsidization. Including, removal of trash and organic waste; minimize introduction of new water sources including pooling of water from dust control; removal of carcasses from bird and bat collisions; and reduction in new nesting and perching sites where feasible.

The level of impact on Non-Covered Species would be similar to that discussed for the Covered Species.

Impact BR-9: Operational activities would result in avian and bat injury and mortality from collisions, thermal flux or electrocution at generation and transmission facilities.

The impacts of operation activities on avian and bat injury and mortality are analyzed below for wind turbines, solar, and transmission.

Wind Turbine

This section summarizes the range of impacts to bird and bat species within the Plan Area that occur as a consequence of wind turbine operation. The range of collision rates calculated in Table IV.7-160 are indicative of the overall annual collision rates for all bird and bat species. The range of collision rates is estimated for the final full build-out of wind over the life of the Plan, and is based on the range of collision rates in existing published and gray literature. While it is possible to provide a range of possible collision rates, it is not feasible to estimate the collision rate for each Covered Species, but only infer the propensity for a species to be at risk from collision by the overlap between the species habitat models and the likely distribution of wind generation across the subareas.

Implementation of Alternative 2 would result in a median of 15,000 collisions per year for birds and 69,000collisions per year for bats across the Plan Area. In Alternative 2, 28 % of wind would be in the Pinto Lucerne Valley and Eastern Slopes, and 28% in the West Mojave and Eastern Slopes subareas. While 26% of wind development would be in the Cadiz Valley and Chocolate Mountains ecoregion subarea and 16% of development in the Borrego Imperial Valley ecoregion subarea, with the remaining 19 % spread across the remaining subareas. In Alternative 2, development in the West Mojave and Eastern Slopes would affect Bendire's thrasher, burrowing owl, California condor, golden eagle, least Bell's vireo, mountain plover, southwestern willow flycatcher, Swainson's hawk, and tricolored blackbird. Whereas, development in the Pinto and Lucerne Valley subarea would mainly affect golden eagle territories and important Bendire's thrasher habitat. In Imperial Valley subarea development of wind facilities would disproportionately affect overwintering migratory birds such as sandhill crane and, mountain plover, as well as wetland residents like Yuma clapper rail and California black rail.

Pre-construction CMAs require habitat assessments and pre-construction surveys for covered riparian and wetland birds, burrowing owl, greater sandhill crane, Swainson's hawk, Bendire's thrasher, golden eagle, and plant Covered Species.

Application of siting CMAs would avoid or minimize the risk to species localities. Setbacks from active nests would be required for Bendire's thrasher, California condor, Gila woodpecker, and golden eagle. In addition, projects would be sited and designed to avoid impacts to occupied and suitable habitat for Covered Species to the maximum extent feasible. Implementation of bat specific CMAs include 0.5 -mile setbacks from all bat maternity roosts and 5% disturbance caps on desert scrub and woodland habitats in the vicinity of occupied pallid bat and Townsend's big eared bat roosts would reduce impacts to bat Covered Species. Although these CMAs would be in place under Alternative 2, some of the DFAs under this alternative are sited in remote geographic locations in intact landscapes where impacts to Covered Species have a higher potential to occur.

Applicants would develop and implement a project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meets the approval of the appropriate DRECP Coordination Group. The goal of the project-specific BBOS will be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar, geothermal, or transmission project. A bird and bat use and mortality monitoring program will be implemented during operations using current protocols and best procedures available at time of monitoring. Further, the compensation requirements in the BBOS would be based on ongoing/annual fees and the biological basis for the fee will be determined by the mortality effects as annually measured and monitored according to the BBOS.

Similarly, a Condor Operations Strategy (COS) would be developed on a project-specific basis with the goal of avoiding mortality from operations of wind, solar and geothermal projects. No take for condors will be will be permitted in the form of kill from project operations. Any actions taken to encourage condors to leave an area that might result in harassment, injury, or mortality to the bird will be conducted by a Designated Biologist.

Table IV.7-160
Estimated Range of Collisions per Year Expected for Birds and Bats by Subarea – Alternative 2

Ecoregion Subarea	# Turbines	Birds (Collisions/Yr)[1]			Bats (Collisions/Yr)[1]		
		Low	*Median*	*High*	*Low*	*Median*	*High*
Cadiz Valley and Chocolate Mountains	783	1,000	4,000	15,000	2,000	18,000	110,000
Imperial Borrego Valley	145	200	700	3,000	300	3,000	20,000
Kingston and Funeral Mountains	57	100	300	1,000	100	1,000	8,000

Table IV.7-160
Estimated Range of Collisions per Year Expected for Birds and Bats by Subarea – Alternative 2

Ecoregion Subarea	# Turbines	Birds (Collisions/Yr)[1]			Bats (Collisions/Yr)[1]		
		Low	*Median*	*High*	*Low*	*Median*	*High*
Mojave and Silurian Valley	139	200	700	3,000	300	3,000	20,000
Owens River Valley	44	100	200	800	100	1,000	6,000
Panamint Death Valley	12	-	100	200	-	300	2,000
Pinto Lucerne Valley and Eastern Slopes	815	1,000	4,000	16,000	2,000	19,000	114,000
Piute Valley and Sacramento Mountains	0	-	-	-	-	-	-
Providence and Bullion Mountains	159	200	800	3,000	300	4,000	22,000
West Mojave and Eastern Slopes	830	1,000	4,000	16,000	2,000	19,000	116,000
Grand Total	**2,985**	**4,000**	**15,000**	**57,000**	**6,000**	**69,000**	**418,000**

[1] Method for estimation of annual bird and bat collision rates described in Section IV.7.1.1.2 and discussed in more detail in Section IV.7.2.1.3

Note: The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Solar

Collision with power towers, heliostats solar arrays, and injury or mortality from exposure to concentrate solar flux, are all known impacts of solar generation facilities. While the nature of the impacts remain the same for all alternatives, the distribution of impacts across the plan area varies in relation to the anticipated quantity and location of solar facilities in each alternative. Under Alternative 2 a total of 2,473,000 acres of the Plan Area would designated as DFAs, of which up to 102,000 acres would be directly impacted by solar development. This is the least restricted of all development alternatives.

In Alternative 2, plan-wide solar development would result in a 3.5-fold increase in collision risks relative to baseline (Appendix O). 17% of the anticipated solar facilities would be in the Cadiz Valley and Chocolate Mountains Region, and 33% would be in the Imperial Borrego Valley subarea. The West Mojave and Eastern Slopes subarea would support approximately 34% of the solar development, with a further 7% occurring in the Pinto and Lucerne Valley subarea. The remaining 9% would be spread across the rest of the Plan area.

Solar impacts in a subarea may be disproportionately important because of the biological value of a given area. Impacts in Imperial Borrego Valley and the Cadiz Valley would disproportionately affect wetland species like Yuma clapper rail and California black rail. Any solar development in Imperial Borrego Valley ecoregion subarea would affect important winter foraging areas for mountain plover and greater sandhill crane. Further, migratory birds would be affected, because development is likely to occur within recognized high use areas of the pacific flyway, which include corridors between the Colorado River, the Salton Sea and the Coachella Valley. In the western Mojave, impacts along the HWY14 corridor, in Antelope Valley and to the east of Lancaster may disproportionately affect nesting Swainson's hawk, and Bendire's thrasher. Whereas, impacts in the Lucerne Valley affect foraging habitat for nesting golden eagle populations, and over wintering habitat of Bendire's thrasher. Other species, like burrowing owl are less regionally specific and but likely to be impacted by expected plan wide increase in solar development on agricultural, which is typically their foraging and nesting habitat.

To offset potential impacts, the application of CMAs would require projects to be sited and designed to avoid impacts to occupied and suitable habitat for Covered Species, to the maximum extent feasible. Further, siting and construction CMAs require setbacks from riparian and wetland habitats which would minimize direct loss. Compensation CMAs would offset habitat loss for Covered Species. A bird and bat use and mortality monitoring program would be implemented during operations. Any proposed projects that are likely to impact bird and bat Covered Species during operation would develop and implement project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meet the approval of the appropriate DRECP Coordination Group. The goal of the project-specific Bird and Bat Covered Species Operational Actions would be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar and geothermal projects. The compensation requirements of AM-LL-4 would be based on ongoing/annual fees and the biological basis for the fee would be determined by the mortality effects as annually measured and monitored according to AM-LL-4. In combination, the application of siting, monitoring, operational and compensation CMAs would minimize impacts to migratory birds.

Bat mortality from solar facilities may occur because of collision or solar flux injury. No DFAs are known to be specifically sensitive areas for bat foraging, and implementation of bat specific CMAs include 500 feet setbacks from all bat maternity roosts and 5% disturbance caps on desert scrub and woodland habitats in the vicinity of occupied Pallid bat and Townsend's Big eared Bats roosts. Would reduce impacts to covered bat species.

Transmission

The transmission collision and electrocution impacts would occur from generation tie lines (collector lines), new substations, and major transmission lines (delivery lines) that deliver power to major load centers. The distribution of impacts from collector lines would mostly occur within DFAs and be similar in distribution to the generation facilities. Most of the affected areas would be in Imperial Borrego Valley, Cadiz Valley and Chocolate Mountains, West Mojave and Eastern Slopes, Pinto Lucerne Valley, and the Mojave and Silurian Valley, subareas, with 14,000 acres, 8,000 acres, 1,000 acres, 6,000 acres and 1,000 acres of terrestrial impacts anticipated respectively. The remaining 3,000 acres of terrestrial impacts would be spread throughout the remaining subareas.

Both large transmission lines and the network of smaller collector lines would present collision and electrocution hazard to bird Covered Species. In particular, lines running perpendicular to migratory corridors or close to bird refuges would represent a greater hazard. Such lines would include those anticipated to run parallel to the Tehachapi Mountains and those that would cross the Tehachapi mountain passes. In addition, anticipated delivery lines in Chuckwalla Valley would run parallel to I-10 corridor in the existing transmission corridors. In the Imperial Borrego Valley subarea, lines would run along the along the eastern side of Salton Sea in existing transmission corridors that run parallel to the foothills of the Chocolate Mountains; and would also run from east to west between the Imperial Valley and the San Diego area. All these lines would represent additional risk to migrating and overwintering covered avian species, due to their location. Collision risks in these areas increase during storm events when flocks of migrating birds come down to wait out the storms before continuing their migration.

All bird Covered Species may be impacted by additional transmission infrastructure. To ameliorate potential hazards, transmission projects would reduce impacts to Covered Species by implementing Plan-wide, landscape-level, natural community, and Covered Species CMAs where feasible, as discussed under the wind impacts section.

Applicants would develop and implement a project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meets the approval of the appropriate DRECP Coordination Group. The Bird and Bat Covered Species Operational Actions aims to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar, geothermal, or transmission project. A bird mortality monitoring program will be implemented during operations using current protocols and best procedures available at time of monitoring. Bird and Bat Covered Species Operational Actions would include compensatory mitigation to offset the inadvertent mortality to covered avian species. Such compensation would be in accordance with AM-LL-4 and may include ongoing/annual fees.

The biological basis for the fee will be determined by the mortality effects as annually measured and monitored according to AM-LL-4.

In addition, transmission projects would implement transmission specific CMAs that would: where feasible, bury electrical collector lines along roads (AM-TRANS-1); fit flight diverters on all transmission projects spanning or within 1,000 feet of water bodies and watercourses (AM-TRANS-2); avoid siting transmission projects that span canyons or are located on ridgelines (AM-TRANS-3); restrict transmission projects to within designated utility corridors (AM-TRANS-4). With the implementation of CMAs impacts to Covered Species would minimized.

The level of impact on Non-Covered Species would be similar to that discussed for the Covered Species.

Operational Impacts Take Estimates for Covered Avian and Bat Species

The following section summaries the initial estimates for take of Covered Species by operational activities that would require compensatory mitigation. Take estimates integrate all sources of mortality for each technology discussed above. Section IV.7.1.1.2 provides the method used to estimate the operational take for Covered avian and bat species provided here. Based on the location of DFAs and MW distribution, it is expected that take of Covered Species associated with Agricultural habitats would be particularly affected, which would include Covered Species such as burrowing owl, Swainson's hawk, greater sandhill crane and mountain plover.

Table IV.7-161
Plan-Wide Estimated Total Take for
Covered Avian and Bat Species – Alternative 2

Covered Bird and Bat Species	Solar Impact	Wind Impact	Geothermal Impact	Total Impact
Bendire's thrasher	40	50	0	90
Burrowing owl	140	180	20	330
California condor	0	0	0	0
California black rail	40	20	10	60
Gila woodpecker	40	20	0	60
Golden eagle	n/a	n/a	n/a	n/a
Least Bell's vireo	60	10	0	70
Mountain plover	80	130	20	230
Greater sandhill crane	10	20	10	40
Southwestern willow flycatcher	60	30	0	80
Swainson's hawk	40	30	0	70

Table IV.7-161
Plan-Wide Estimated Total Take for
Covered Avian and Bat Species – Alternative 2

Covered Bird and Bat Species	Solar Impact	Wind Impact	Geothermal Impact	Total Impact
Tricolored blackbird	70	70	0	150
Western yellow billed cuckoo	40	20	0	60
Yuma clapper rail	40	20	10	60
Grand Total Avian Species	**660**	**600**	**70**	**1300**
California leaf-nosed bat	20	70	0	80
Pallid bat	20	200	0	220
Townsend's big-eared bat	50	30	10	90
Grand Total Bat Species	**90**	**300**	**10**	**390**

[1] Take for California condor would not be permitted under the DRECP

[2] Take of Golden Eagle would be permitted on a project by project basis. Based on the 2013 analysis, no more than 15 golden eagles per year would be authorized for 2014 for any new activity within the Plan Area. Take limits for the DRECP area will be re-evaluated annually based on the amount of ongoing take and population estimates of eagles within the local-area population of eagles.

Note: The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table

Impact Reduction Strategies and Mitigation

The implementation of the Plan would result in conservation of some desert lands as well as the development of renewable energy generation and transmission facilities on other lands. There are several ways in which the impacts of the renewable energy development covered by the Plan would be lessened. First, the Plan incorporates specific biological reserve design components and LUPA components for each alternative. Additionally, Covered Activities under the Plan would be required to implement CMAs to avoid and minimize impacts inside and outside the DFAs and CMAs to compensate for the impacts of Covered Activities. Additionally, the implementation of existing laws, orders, regulations and standards would reduce the impacts of project development. If significant impacts would still result after implementation of CMAs and compliance with applicable laws and regulations, then specific mitigation measures are recommended in this section.

Conservation and Management Actions

The conservation strategy for Alternative 2 (presented in Volume II) defines specific actions that would reduce the impacts of this alternative. The impact assessment above references applicable avoidance, minimization, and compensation CMAs that would reduce and compensate for the impacts of Covered Activities.

For all Covered Activities throughout the Plan Area, the avoidance and minimization Plan-wide CMAs AM-PW-1 through AM-PW-17 would be required to reduce potential adverse effects through the implementation of Plan-wide standard practices. Resource-specific CMAs would be required for Covered Activities impacting specific resources, including the CMAs under AM-DFA-RIPWET, AM-DFA-DUNE, AM-DFA-ONC, AM-DFA-AG, AM-DFA-BAT, AM-DFA-PLANT, AM-DFA-ICS, and AM-DFA-BLMSS. Additionally, all impacts resulting from Covered Activities in the Plan Area would be required to compensate impacts to biological resources (COMP-1 through COMP-5). While these CMAs would be applied under Alternative 2, the DFAs under this alternative are sited in geographic locations where the CMAs would not avoid, minimize, or otherwise offset the effects of the development of Covered Activities.

Laws and Regulations

Similar to the No Action Alternative, existing laws and regulations will reduce certain impacts of Covered Activity implementation. Relevant regulations are presented in the Regulatory Setting in Volume III. The requirements of relevant laws and regulations are summarized above for the No Action Alternative in Section IV.7.3.1.1.1.

Mitigation Measures

After implementation of the CMAs and existing laws and regulations, mitigation measures will be applied to further reduce some of the adverse impacts on biological resources. The biological conservation strategy is an essential part of the project description for the DRECP. Implementation of the DRECP, including the CMAs, would avoid, minimize, and compensate for the impacts of the Covered Activities such that additional mitigation measures are not necessary for all but the following resource impacts.

Mitigation Measure for Impact BR-1 Siting and construction of renewable energy and transmission development would result in impacts to rare natural communities. If habitat assessments identify rare natural communities on or within 0.25 miles of a project site, the DRECP shall require the following measure be implemented.

BR-1a Prepare a Rare Natural Community Avoidance and Mitigation Plan that specifically addresses how rare natural communities would be avoided or mitigated for any ground disturbance impacts sited within 0.25 mile of mapped rare natural communities. The Plan shall be prepared as part of the project-specific environmental review.

For avoidance of rare natural communities, the Plan shall demonstrate that the project facilities have been sited or that the project has implemented

appropriate site-specific design features to ensure that the effects of the proposed project would not directly impact or contribute to indirect effects on the rare natural communities on or adjacent to the project site. Avoidance of potential indirect effects on rare natural communities relate to dust, fire management, invasive plants, and degradation of ecological processes (i.e., hydrological processes and soil processes).

For impacts to rare natural communities, the Plan shall demonstrate that the compensation used to offset the impacts of the proposed project through CMA COMP-1 and COMP-2 also offsets the loss of rare natural community alliances through in-kind acquisition or non-acquisition actions that benefit the rare natural community alliance(s) impacted.

IV.7.3.4.1.2 Impacts from Reserve Design

The impacts of the reserve design collectively refers to the designation and management of existing conservation areas (i.e., LLPAs and MEMLs), BLM LUPA conservation designations, and reserves established within Conservation Planning Areas. These are considered beneficial impacts for biological resources, and this section serves as a biological resources conservation analysis for this alternative. This section is organized by biological resource at the landscape level, natural community level, and species level.

Overall, of the 15,087,000 acres within the Alternative 2 Reserve Design lands, 41% is within BLM LUPA conservation designations, 8% in the Conservation Planning Areas, and the remaining 51% are located in existing conservation areas. Within the Reserve Design Lands, the interagency Plan-wide Conservation Priority Area covers approximately 2,734,000 acres, including 2,427,000 acres of BLM LUPA conservation designations and 307,000 acres of Conservation Planning Areas.

The DRECP Plan-Wide Reserve Design Envelope for Alternative 2 was developed from the reserve design envelope developed through the reserve design process described in Section I.3.4.4 and Appendix D; however, the extent of the DRECP Plan-Wide Reserve Design Envelope for Alternative 2 differs from the extent of the envelope described in Volume I because it was integrated with the other elements of the alternative.

Overall, the DRECP Plan-Wide Reserve Design Envelope for Alternative 2 would include 94% of the conceptual reserve design envelope described in Volume I. The Alternative 2 reserve design envelope would also include high percentages of the conceptual reserve design envelope in all of the subareas, ranging from 83% in the West Mojave and Eastern Slopes subareas to 102% in the Piute Valley and Sacramento Mountains subarea.

Areas not included in the DRECP Plan-Wide Reserve Design Envelope for Alternative 2 that are in the conceptual reserve design envelope described in Volume I include:

- Portions of Study Area Lands: The Future Assessment Areas occupy approximately 14,000 acres that were identified in the reserve design envelope that are not designated as Reserve Design Lands under Alternative 2, including the following geographic areas:
  - The Brisbane Valley area south of Barstow
  - Morongo Basin
- Portions of the DFAs: Areas in DFAs under Alternative 2 occupy approximately 916,000 acres that were identified in the conceptual reserve envelope that are not be designated as Reserve Design Lands, including the following geographic areas:
  - Palen and Chuckwalla Valley along Interstate 10 in east Riverside County
  - Lucerne and Johnson Valley area along Highway 247
  - Western and eastern areas of Imperial Valley
  - East and west of Barstow
  - Silurian Valley north of Interstate 15 (SAA in the Preferred Alternative)
  - Foothill areas of the Antelope Valley
  - Along Highway 395 north of Kramer Junction (SAA in the Preferred Alternative)
  - Along Highway 395 west of Ridgecrest
  - Coso Range area

  As noted in the impact analysis section above, siting of DFAs in these key locations would not only prevent the conservation of these areas within the reserve design envelope but also result in impacts in these key locations.
- Undesignated Areas : Approximately 106,000 acres were not designated as Reserve Design Lands under Alternative 2 that were identified in the conceptual reserve envelope, which is primarily comprised of BLM-administered lands in the Plan Area without BLM LUPA conservation designations over them.

Landscape

Habitat Linkages

Figures III.7-26 through III.7-36 in Chapter III.7 of Volume III shows the desert linkage network for the Plan Area and in each ecoregion subarea. Table IV.7-162 shows the Plan-

wide conservation of the desert linkage network under Alternative 2. Conservation of the desert linkage network totals more than 2.5 million acres (70%).

The linkage in the northern portion of the Cadiz Valley and Chocolate Mountains subarea that extends from the Ward Valley to the Vidal Valley and south to the Big Maria Mountains and the Palen Mountains is entirely conserved. The linkage from the Ward Valley to the Cadiz Valley is entirely conserved. The three smaller connections in the Palen Valley are all entirely conserved. With the exception of the linkage along the eastern boundary of the Plan Area and the Chuckwalla Valley, the majority of the remaining linkages are conserved. In the Imperial Borrego Valley, the connection that extends into the Cadiz Valley and Chocolate Mountains subarea to the east and the linkage along East Mesa are only partly conserved. The linkages in the Kingston and Funeral Mountains subarea along Shadow Valley and between Halloran Springs and the Shadow Mountains are entirely conserved. Only a portion of the linkage across the Clark Mountain Range is not conserved, as well as the western end of the westernmost linkage to the Silurian Valley. None of the linkages in the Mojave and Silurian Valley subarea are entirely conserved since the middle portion of the subarea is not in Reserve Design Lands. A section of the single linkage in the Owens River Valley subarea is not conserved. The connectivity of the northernmost linkage in the Panamint Death Valley subarea is preserved only along the Searles Range. The connection in the China Lake Naval Weapon Center is not conserved in Reserve Design Lands, but most of the remainder of this linkage to the west is conserved. The westernmost portions and some areas along the southern boundary of the subarea of the linkage in the eastern portion of the subarea are not in Reserve Design Lands, but connectivity in this linkage is mostly preserved. In the Pinto Lucerne Valley and Eastern Slopes subarea, none of the linkages are completely conserved, except for the linkage that extends into the West Mojave and Eastern Slopes subarea, which is entirely conserved within the Pinto Lucerne Valley and Eastern Slopes subarea. Only the linkages along the eastern boundary of the Piute Valley and Sacramento Mountains subarea would not be in Reserve Design Lands. The linkages in the eastern portion of Providence and Bullion Mountains subarea would be entirely maintained in Reserve Design Lands, but the area northeast of the Twentynine Palms Corps Base is outside Reserve Design Lands, potentially breaking connections to the north and east. In the West Mojave and Eastern Slopes subarea the connection between Barstow and Victorville, though constrained, is mostly conserved. Although large portions of the other linkages in this subarea are conserved, none of them are wholly conserved in Reserve Design Lands.

In addition to conservation of the desert linkage network, CMAs provide for the avoidance and minimization of certain linkages in the DFAs (see Section IV.7.3.4.1.1).

Table IV.7-162
Plan-Wide Conservation Analysis for the Desert Linkage Network – Alternative 2

Desert Linkage Network by Ecoregion Subarea	Available Lands (acres)	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Cadiz Valley and Chocolate Mountains	890,000	187,000	481,000	12,000	680,000	76%
Imperial Borrego Valley	156,000	14,000	80,000	100	94,000	60%
Kingston and Funeral Mountains	174,000	28,000	123,000	3,000	155,000	89%
Mojave and Silurian Valley	507,000	179,000	215,000	6,000	400,000	79%
Owens River Valley	19,000	40	12,000	2,000	14,000	73%
Panamint Death Valley	206,000	109,000	77,000	500	186,000	90%
Pinto Lucerne Valley and Eastern Slopes	291,000	16,000	119,000	16,000	150,000	52%
Piute Valley and Sacramento Mountains	152,000	14,000	98,000	2,000	114,000	75%
Providence and Bullion Mountains	426,000	144,000	204,000	3,000	350,000	82%
West Mojave and Eastern Slopes	860,000	45,000	349,000	49,000	443,000	51%
Grand Total	**3,682,000**	**736,000**	**1,757,000**	**94,000**	**2,587,000**	**70%**

1 Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs).

2 Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), which includes BLM and non-BLM inholdings within the designation.

3 Conservation Planning Areas include areas of the reserve design from which reserve areas would be assembled on private and other public land.

Notes: Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1.2.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Hydrological Resources

A conservation analysis for hydrological resources is provided below, including playa, seep/spring, and the four major rivers in the Plan Area (i.e., Amargosa, Colorado, Mojave and Owens) for Alternative 2. Conservation of riparian areas and wetlands, which co-occur with many of these hydrological resources, is provided below under Natural Communities.

Playa

Playa totals 322,000 acres in the Plan Area. Overall, 66% (212,000 acres) would be conserved under Alternative 2. Existing Conservation would account for 44% of the conservation, BLM LUPA would account for 55%, and Conservation Planning Areas would account for 1%. Additionally, playas and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks. CMAs for playas would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided riparian or wetland natural communities.

Seep/Spring

There are 484 seep/spring locations in the Plan Area in the U.S. Geological Survey (USGS) National Hydrography Dataset (NHD) in available lands. Overall, 87% (421 locations) of the seep/spring locations would be conserved under Alternative 2. Over half of the of seep/spring locations under Alternative 2 would be conserved in all subareas. These include Cadiz Valley and Chocolate Mountains (100%, 5 locations), Imperial Borrego Valley (43%, 10 locations), Kingston and Funeral Mountains (82%, 70 locations), Mojave and Silurian Valley (74%, 20 locations), Owens River Valley (32%, 12 locations), Panamint Death Valley (93%, 39 locations), Pinto Lucerne Valley and Eastern Slopes (64%, 54 locations), Piute Valley and Sacramento Mountains (79%, 15 locations), Providence and Bullion Mountains (85%, 56 locations), and West Mojave and Eastern Slopes (51%, 48 locations).

Overall, Existing Conservation would account for 58% of the conservation of seep/spring, BLM LUPA conservation designations would account for 37%, and Conservation Planning Areas would account for 5%. Additionally, seeps and springs and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks. However, it is likely that most, if not all, that all seep/spring locations and associated Covered Species and hydrological functions would be conserved through adherence to site-specific CMAs. CMAs for seep/spring locations would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In

addition, CMAs would require maintenance of hydrological function of the avoided wetland natural communities.

Major Rivers

Overall, 74% of the major rivers would be conserved under Alternative 2, including 90% of the Amargosa River, 42% of the Colorado River, 74% of the Mojave River, and 70% of the Owens River. Conservation Planning Areas would account for 34% of the conservation of the major rivers, Existing Conservation would account for 44%, and BLM LUPA conservation designations would account for 23%. Additionally, major rivers and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks.

Dune and Sand Resources

Overall, 76% (1,137,000 acres) of dunes and sand resources would be conserved under Alternative 2. At least 60% of dunes and sand resources would be conserved in 8 subareas in the Plan Area that contain substantial acreage of dunes and sand resources, including Cadiz Valley and Chocolate Mountains at 78% (463,000 acres), Imperial Borrego Valley at 61% (81,000 acres), Kingston and Funeral Mountains at 86% (59,000 acres), Mojave and Silurian Valley at 84% (169,000 acres), Owens River Valley at 60% (5,000 acres), Panamint and Death Valley at 84% (118,000 acres), Pinto Lucerne Valley and Eastern Slopes at 69% (45,000 acres), and Providence and Bullion Mountains at 75% (184,000 acres). The subarea with lower conservation of dunes and sand resources under Alternative 2 is the West Mojave and Eastern Slopes at 38% (14,000acres). Additionally, dunes and sand resources and associated Covered Species, natural communities and ecological functions would be avoided through application of the dune avoidance and minimization CMAs.

Environmental Gradients

The conservation analysis addresses four types of environmental gradients in the Plan Area: elevation, landforms, slope, and aspect.

Elevations are characterized by 1,000-foot interval classes ranging from below sea level to 9,000 feet. Approximately 92% of the Plan Area is between sea level and 5,000 feet, 6% is below sea level, and 2% is above 5,000 feet. Under Alternative 2, the majority of available lands would be conserved at all elevation classes above sea level, ranging from 66% for the 2,000 to 3,000 feet class to 65% of the 7,000 to 8,000 feet class. The average conservation of elevation classes above sea level would be 73%. The majority of Plan Area lands for each elevation class above sea level will be conserved under Alternative 2 optimizing the potential for successful species range shifts, contractions, and expansions, which may occur

in response to climate change. In addition, the conservation of such a high proportion of Plan Area lands across all elevation classes allows for the conservation of the greatest range and diversity of natural communities and Covered Species habitats. Conserving the majority of each elevation class within the Plan Area will also promote ecological processes and help sustain natural communities and Covered Species.

Landforms in the Plan Area include canyons/deeply incised streams, mountain tops/high ridges, open slopes, and plains. Plains are the dominant landform in the Plan Area totaling 13,906,386 acres, or 73% of the Plan Area. Conservation of the plains landform under Alternative 2 would include 68% of plains. As the majority of Covered Species in the Plan Area are associated with plains during part or all of its life cycle, the conservation of the majority of this landform is of benefit to a large number of Covered Species including those Covered Species that spend its entire life cycle within this type of landform, and those Covered Species that utilize it during parts of its life cycle such as for breeding, migration, or wintering. Open slopes make up about 16% of the Plan Area and canyons/deeply incised streams and mountain tops/high ridges each make up about 5% to 6% of the Plan Area.

Conservation of the remaining landforms under Alternative 2 would include 88% of canyons/deeply incised streams, 88% of mountain tops/high ridges, and 86% of open slopes. As the majority of Plan Area lands for all landforms will be conserved under Alternative 2, it optimizes the potential for successful species range shifts, contractions, and expansions, which may occur in response to climate change. In addition, the conservation of such a high proportion of Plan Area lands across all landforms allows for the conservation of the greatest range and diversity of natural communities and Covered Species habitats. Conserving the majority of each landform within the Plan Area will also promote ecological processes and help sustain natural communities and Covered Species.

Slopes in the Plan Area are characterized by 5% interval classes. Sixty-one percent of the Plan Area lands are on slopes up to 5%, and 87% of the Plan Area lands are on slopes less than 20%. Conservation of the slope classes under Alternative 2 would range from 65% of slopes up to 5% to 93% of slopes over 100%, with 85% of slopes less than 20% conserved under Alternative 2. The vast majority of Plan Area lands within each slope class will be conserved under Alternative 2 optimizing the potential for successful species range shifts, contractions, and expansions, which may occur in response to climate change. In addition, the conservation of such a high proportion of Plan Area lands across all slope classes allows for the conservation of the greatest range of natural communities and Covered Species habitats. Conserving the majority of each slope class within the Plan Area will also promote ecological processes and help sustain natural communities and Covered Species.

Aspects in the Plan Area include nine classes: north, northeast, east, southeast, south, southwest, west, northwest, and flat. Except for flat, the remaining eight aspects are fairly

evenly distributed in the Plan Area, ranging from 9% for northwest aspects to 15% for northeast aspects. Flat terrains account for only 1% of the Plan Area. Under Alternative 2, conservation of aspects would range from 71% for flat terrain to 84% of south and southwest aspects. The majority of Plan Area lands for each aspect class will be conserved under Alternative 2 optimizing the potential for successful species range shifts, contractions, and expansions, which may occur in response to climate change. In addition, the conservation of such a high proportion of Plan Area lands across all aspect classes allows for the conservation of the greatest range of natural communities and Covered Species habitats. As a number of plant Covered Species have specific aspect requirements, the conservation of the majority of lands within each aspect class is beneficial to those species. Conserving the majority of each aspect class within the Plan Area will also promote ecological processes and help sustain natural communities and Covered Species.

Natural Communities

Table IV.7-163 shows the conservation to natural communities within the reserve design. A conservation summary by general community is provided below. Appendix R2 provides a detailed analysis of natural community conservation by ecoregion subarea.

California forest and woodlands

Overall, approximately 65,000 acres (44%) of California forest and woodlands would be conserved under Alternative 2. The majority of conservation would occur in the West Mojave and Eastern Slopes subarea, but conservation would also occur in the Pinto Lucerne Valley and Eastern Slopes subarea and about 40 acres would be conserved in the Owens River Valley subarea. Conservation would primarily come from BLM LUPA conservation designations. In addition to conservation of California forest and woodlands, CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

California forest and woodlands provide habitat for the following Covered Species: Tehachapi slender salamander, golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, bighorn sheep, and Bakersfield cactus. California forest and woodlands also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-50 in Section IV.7.3.2.1. Therefore, conservation of California forest and woodlands would provide conservation of suitable habitat for these species.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 34,000 acres (31%) of chaparral and coastal scrubs would be conserved under Alternative 2. The majority of conservation would occur in the West Mojave and Eastern Slopes and Pinto Lucerne Valley and Eastern Slopes subareas. Conservation is primarily from existing conservation and BLM LUPA conservation designations. In addition to conservation of chaparral and coastal scrubs, CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Chaparral and coastal scrubs provide habitat for the following Covered Species: golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, Parish's daisy, and Bakersfield cactus. Chaparral and coastal scrubs also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-50 in Section IV.7.3.2.1. Therefore, conservation of chaparral and coastal scrubs would provide conservation of suitable habitat for these species.

Desert conifer woodlands

Overall, approximately 190,000 acres (66%) of desert conifer woodlands would be conserved under Alternative 2. The majority of conservation would occur in the Pinto Lucerne Valley and Eastern Slopes and Providence and Bullion Mountains and West Mojave and Eastern Slopes subareas. Conservation of this general community would primarily come from existing conservation (77% of total conservation). In addition to conservation of desert conifer woodlands, CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert conifer woodlands provide habitat for the following Covered Species: Tehachapi slender salamander, golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, bighorn sheep, and Parish's daisy. Desert conifer woodlands also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-50 in Section IV.7.3.2.1. Therefore, conservation of desert conifer woodlands would provide conservation of suitable habitat for these species.

Desert outcrop and badlands

Overall, approximately 1,339,000 acres (83%) of desert outcrop and badlands would be conserved under Alternative 2. The majority of the conservation would occur in the Cadiz Valley and Chocolate Mountains and Piute Valley and Sacramento Mountains subareas. Most (approximately 802,000 acres) of the total conservation of desert outcrop and

badlands are in areas of existing conservation. In addition to conservation of desert outcrop and badlands, CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert outcrop and badlands provide habitat for the following Covered Species: golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, and bighorn sheep. They also provide habitat for desert kit fox (Planning Species). Covered Species associated with desert scrub may also be associated with this general community. Desert outcrop and badlands also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-50 in Section IV.7.3.2.1.Therefore, conservation of desert outcrop and badlands would provide conservation of suitable habitat for these species.

Desert scrubs

Overall, approximately 9,917,000 acres (75%) of desert scrubs would be conserved under Alternative 2. Over half of the conserved acreage would occur in the Kingston and Funeral Mountains, Providence and Bullion Mountains, and Cadiz Valley and Chocolate Mountains subareas. However, conservation of desert scrubs is well distributed with conservation in every subarea of the Plan Area. As the most prevalent desert scrub natural community in the Plan Area, Mojavean–Sonoran desert scrub accounts for the majority of the conservation of desert scrub communities. Over half of the total conservation of desert scrubs would be in existing conservation areas. In addition to conservation of desert scrubs, CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert scrubs provide habitat for the following Covered Species: golden eagle, California condor, Bendire's thrasher, Swainson's hawk, burrowing owl, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, Mohave ground squirrel, bighorn sheep, desert tortoise, flat-tailed horned lizard, Mojave fringe-toed lizard, triple-ribbed milk-vetch, alkali mariposa-lily, desert cymopterus, Mojave tarplant, Little San Bernardino Mountains linanthus, Mojave monkeyflower, and Bakersfield cactus. Desert scrubs also provide habitat for desert kit fox and burro deer (Planning Species). Desert scrubs also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-50 in Section IV.7.3.2.1. Therefore, conservation of desert scrubs would provide conservation of suitable habitat for these species.

Dunes

Overall, approximately 223,000 acres (79%) of dunes would be conserved under Alternative 2. The majority of the conserved acreage would occur in the Mojave and Silurian Valley, Imperial Borrego Valley, and Panamint Death Valley subareas. The remaining conserved acreage is distributed throughout the remaining subareas. The majority (approximately 146,000 acres) of the total conservation of desert dunes would be in existing conservation. In addition to conservation of desert dunes, application of the CMAs would require that dune communities be avoided to the maximum extent feasible in DFAs. In addition, CMA application would prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

Dune communities provide habitat for the following Covered Species: Mojave fringe-toed lizard and flat-tailed horned lizard. Dune communities also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-50 in Section IV.7.3.2.1. Therefore, conservation of desert dunes would provide conservation of suitable habitat for these species.

Grasslands

Overall, approximately 53,000 acres (22%) of grasslands would be conserved under Alternative 2. The majority of the conserved acreage would occur in the Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas. As the most prevalent grassland natural community in the Plan Area, California Annual and Perennial Grassland accounts for the vast majority of the conservation of grassland communities. Conservation amongst existing conservation, BLM LUPA conservation designations, and Conservation Planning Areas is relatively well distributed. In addition to conservation of grasslands, CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Grassland communities provide habitat for the following Covered Species: golden eagle, burrowing owl, mountain plover, Swainson's hawk, and Bendire's thrasher. Grassland communities also provide habitat for desert kit fox (Planning Species). Grassland communities also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-50 in Section IV.7.3.2.1. Therefore, conservation of grasslands would provide conservation of suitable habitat for these species.

Riparian

Overall, approximately 713,000 acres (72%) of riparian communities would be conserved under Alternative 2. The majority of the conserved acreage would occur in the Cadiz

Valley and Chocolate Mountains and Imperial Borrego Valley subareas. As the most prevalent riparian natural community in the Plan Area, Madrean Warm Semi-Desert Wash Woodland/Scrub accounts for the majority of the conservation of riparian communities. Most of the conservation of riparian communities would occur in BLM LUPA conservation designations. In addition to conservation of riparian communities, impacts to riparian communities would not occur under Alternative 2 since application of the CMAs would require that riparian communities be avoided to the maximum extent feasible in DFAs. In addition, setbacks from riparian communities would be required that range from 200 feet for Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub to 0.25 mile for Southwestern North American riparian evergreen and deciduous woodland and Southwestern North American riparian/wash scrub.

Riparian communities include microphyll woodlands, which include groundwater-dependent vegetation (e.g., mesquite bosques). Under Alternative 2, conservation for microphyll woodland related natural communities would include: 77% of Madrean warm semi-desert wash woodland/scrub, 58% of Mojavean semi-desert wash scrub, and 70% of Sonoran-Coloradan semi-desert wash woodland/scrub.

Riparian communities provide habitat for the following Covered Species: California black rail, Gila woodpecker, Yuma clapper rail, least Bell's vireo, southwestern willow flycatcher, western yellow-billed cuckoo, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, and Tehachapi slender salamander. Riparian communities also provide habitat for burro deer (Planning Species). In addition, species associated with desert scrub are also associated with Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub. Conservation of riparian communities would benefit these species. Riparian communities also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-50 in Section IV.7.3.2.1. Furthermore, there are also CMAs to avoid impacts to riparian species including pre-construction nesting bird surveys for riparian and wetland bird Covered Species.

Wetlands

Overall, approximately 474,000 acres (55%) of wetland communities would be conserved under Alternative 2. Most of the conserved acreage would occur in the Panamint Death Valley, West Mojave and Eastern Slopes, and Owens River Valley subareas with the remaining conserved acreage distributed throughout the remaining subareas. As the most prevalent wetland natural communities in the Plan Area, conservation of warm semi-desert/ Mediterranean alkali saline wetland, playa, and open water account for the majority of the conservation of riparian communities. Most of the conservation of

wetland communities would occur in BLM LUPA conservation designations. In addition to conservation of wetland communities, Arid West freshwater emergent marsh and Californian warm temperate marsh/seep would be avoided under Alternative 2 since application of the CMAs would require that these communities be avoided to the maximum extent feasible in DFAs, including a 0.25-mile setback. Also, CMAs for North American warm desert alkaline scrub and herb playa and wet flat, southwestern North American salt basin and high marsh, and other undifferentiated wetland-related land covers (i.e., "Playa", "Wetland", and "Open Water") would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided riparian or wetland natural communities.

Wetland communities provide habitat for the following Covered Species: California black rail, Yuma clapper rail, tricolored blackbird, California leaf-nosed bat, pallid bat, Townsend's big-eared bat, desert pupfish, Mohave tui chub, Owens pupfish, and Owens tui chub. In addition, species associated with desert scrub are also associated with Southwestern North American Salt Basin and High Marsh. Conservation of wetland communities would benefit these species. Wetland communities also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-50 in Section IV.7.3.2.1. Furthermore, there are also CMAs to avoid impacts to wetland species including pre-construction nesting bird surveys for riparian and wetland bird Covered Species.

Table IV.7-163
Plan-Wide Conservation Analysis for Natural Communities – Alternative 2

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
California forest and woodland						
Californian broadleaf forest and woodland	72,000	1,000	19,000	700	21,000	30%
Californian montane conifer forest	78,000	25,000	15,000	4,000	44,000	57%
Chaparral and coastal scrub community (Cismontane scrub)						
Californian mesic chaparral	4,000	20	800	200	1,000	27%
Californian pre-montane chaparral	1,000	0	500	10	500	37%
Californian xeric chaparral	24,000	3,000	3,000	3,000	9,000	36%
Central and south coastal California seral scrub	1,000	0	20	30	40	3%
Central and South Coastal Californian coastal sage scrub	54,000	2,000	9,000	3,000	14,000	25%
Western Mojave and Western Sonoran Desert borderland chaparral	24,000	9,000	90	800	10,000	43%
Desert conifer woodlands						
Great Basin Pinyon - Juniper Woodland	287,000	159,000	19,000	12,000	190,000	66%
Desert outcrop and badlands						
North American warm desert bedrock cliff and outcrop	1,613,000	802,000	523,000	14,000	1,339,000	83%

Table IV.7-163
Plan-Wide Conservation Analysis for Natural Communities – Alternative 2

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Desert Scrub						
Arizonan upland Sonoran desert scrub	57,000	44,000	1,000	900	46,000	80%
Intermontane deep or well-drained soil scrub	106,000	30,000	49,000	3,000	82,000	77%
Intermontane seral shrubland	74,000	1,000	4,000	3,000	8,000	11%
Inter-Mountain Dry Shrubland and Grassland	437,000	110,000	138,000	11,000	258,000	59%
Intermountain Mountain Big Sagebrush Shrubland and steppe	76,000	9,000	21,000	1,000	31,000	41%
Lower Bajada and Fan Mojavean - Sonoran desert scrub	10,858,000	4,561,000	3,529,000	182,000	8,271,000	76%
Mojave and Great Basin upper bajada and toeslope	1,333,000	838,000	229,000	31,000	1,097,000	82%
Shadscale - saltbush cool semi-desert scrub	279,000	38,000	67,000	19,000	123,000	44%
Southern Great Basin semi-desert grassland	100	0	40	0	40	35%
Dunes						
North American warm desert dunes and sand flats	282,000	146,000	70,000	7,000	223,000	79%

Table IV.7-163
Plan-Wide Conservation Analysis for Natural Communities – Alternative 2

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Grassland						
California Annual and Perennial Grassland	230,000	23,000	16,000	12,000	51,000	22%
California annual forb/grass vegetation	8,000	400	1,000	200	2,000	20%
Riparian						
Madrean Warm Semi-Desert Wash Woodland/Scrub	697,000	195,000	333,000	7,000	535,000	77%
Mojavean semi-desert wash scrub	30,000	7,000	9,000	2,000	18,000	58%
Riparian	600	20	0	300	300	56%
Sonoran-Coloradan semi-desert wash woodland/scrub	191,000	70,000	61,000	4,000	134,000	70%
Southwestern North American riparian evergreen and deciduous woodland	6,000	500	700	2,000	3,000	46%
Southwestern North American riparian/wash scrub	66,000	7,000	9,000	7,000	23,000	35%
Wetland						
Arid West freshwater emergent marsh	4,000	40	200	1,000	1,000	32%
Californian warm temperate marsh/seep	400	0	0	80	80	20%

Table IV.7-163
Plan-Wide Conservation Analysis for Natural Communities – Alternative 2

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	310,000	136,000	103,000	3,000	242,000	78%
Open Water	209,000	23,000	600	25,000	48,000	23%
Playa	78,000	400	35,000	300	36,000	46%
Southwestern North American salt basin and high marsh	261,000	31,000	97,000	18,000	146,000	56%
Wetland	8,000	30	200	500	700	9%
Other Land Cover						
Agriculture	711,000	6,000	4,000	3,000	12,000	2%
Developed and Disturbed Areas	447,000	3,000	4,000	400	8,000	2%
Not Mapped	7,000	200	400	300	900	14%
Rural	114,000	900	5,000	10,000	16,000	14%
Total	**19,040,000**	**7,279,000**	**5,376,000**	**389,000**	**13,045,000**	**69%**

1 Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs).

2 Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), which includes BLM and non-BLM inholdings within the designation.

3 Conservation Planning Areas include areas of the reserve design from which reserve areas would be assembled on private and other public land.

Notes: Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1.2.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Covered Species Habitat

Table IV.7-164 shows the Plan-wide conservation of Covered Species modeled habitat under the Alternative 2 (before the application of CMAs). Generally, the percent conservation of Covered Species modeled habitat in available lands is highly variable, ranging from 1% for greater sandhill crane (primarily found in agricultural areas) to 87% for triple-ribbed milk-vetch.

Conservation percentages are in large part related to the location and types of habitat modeled for the Covered Species. For example, modeled habitat for greater sandhill crane, which is primarily freshwater wetland and agriculture, is limited to the Palo Verde and Imperial valleys and is mostly within DFAs.

Much of the modeled habitats for desert tortoise and Mojave fringe-toed lizard are in the Mojave Desert in areas that are either already in Existing Conservation or occur in the BLM LUPA conservation designations. Flat-tailed horned lizard modeled habitat is only conserved in the Imperial Borrego Valley, mostly in BLM LUPA conservation designations. Tehachapi slender salamander modeled habitat occurs in the Tehachapi Mountains where conservation is primarily composed of BLM LUPA conservation designations. Furthermore, the siting of the DFAs under Alternative 2 largely avoid habitat for Mojave fringe-toed lizard and Tehachapi slender salamander, and CMAs require avoidance of and setbacks from riparian habitat, wetland habitat, and dune habitat would further avoid and minimize the impacts on these species.

Conservation of bird species associated primarily with wetland and riparian habitats, including California black rail, least Bell's vireo, southwestern willow flycatcher, tricolored blackbird, western yellow-billed cuckoo, and Yuma clapper rail would be augmented by CMAs requiring avoidance of and setbacks from riparian and wetland habitats. Conservation of Bendire's thrasher occurs in every subarea of the Plan Area, but is mainly in existing conservation. Burrowing owl, widespread, but mainly associated with open areas in the West Mojave and Eastern Slopes and agricultural areas in the Imperial Borrego Valley, would primarily be conserved in the same subareas and most of the conservation would occur in BLM LUPA conservation designations.

California condor mainly occurs in the West Mojave and Eastern Slopes subarea so the majority of conservation is also in this subarea with most of the conserved acreage in BLM LUPA conservation designations. Golden eagle modeled suitable habitat and associated conservation is widespread in the Plan Area with most of the conservation in existing conservation areas. Swainson's hawk is primarily associated with the West Mojave and Eastern Slopes, Imperial Borrego Valley, and Owens River Valley subareas; of these subareas, over 15% of suitable habitat is conserved only in the Owens River Valley subarea.

In addition to conservation of suitable habitat, CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs.

Most of the conserved modeled suitable habitat for Gila woodpecker is conserved in the Cadiz Valley and Chocolate Mountains subarea. Conservation of mountain plover suitable habitat is mostly the West Mojave and Eastern Slopes subarea, which is mostly conserved in Conservation Planning Areas.

Conservation of suitable habitat for desert pupfish and Mohave tui chub is mostly in existing conservation areas. Although conservation of desert pupfish is relatively low especially in the Imperial Borrego Valley subarea, avoidance and setback provisions for managed wetlands and agricultural drains would conserve wetland and riparian features within the agricultural matrix and provide conservation benefits to desert pupfish. Owens pupfish and Owens tui chub are conserved primarily in Conservation Planning Areas.

Conservation of suitable habitat for bighorn sheep, both inter-mountain and mountain habitat, is widespread and is mainly in existing conservation areas. The siting of the DFAs under Alternative 2 largely avoid habitat for bighorn sheep. Approximately half or more of the conservation of burro deer, desert kit fox, and Mojave ground squirrel suitable habitat is from BLM LUPA conservation designations. Suitable habitat for the covered bat species—California leaf-nosed bat, pallid bat, and Townsend's big-eared bat—is widespread and mainly conserved in existing conservation areas. In addition to conservation of suitable habitat for covered mammal species, the CMAs require avoidance of and setbacks from riparian and wetland habitat that would reduce impacts on these habitats used by Mohave ground squirrel, California leaf-nosed bat, pallid bat, and Townsend's big-eared bat.

Conservation of plant species ranges from 8% of suitable habitat for alkali mariposa-lily to 87% of suitable habitat for triple-ribbed milk-vetch. The proportion of suitable habitat conserved in existing conservation, BLM LUPA conservation designations, and Conservation Planning Areas varies by species. However, in addition to the conservation of modeled suitable habitat, the CMAs require surveys for plant Covered Species for all Covered Activities, and the CMAs requiring avoidance of and setbacks from occupied habitat would further reduce the impacts on these species.

In addition to conservation of suitable habitat for Covered Species, compensation CMAs would offset habitat loss for all Covered Species.

Table IV.7-164
Plan-Wide Conservation Analysis for Covered Species Habitat – Alternative 2

Species	Available Lands (acres)	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Amphibian/Reptile						
Agassiz's desert tortoise	9,858,000	3,711,000	3,526,000	207,000	7,444,000	76%
Flat-tailed horned lizard	758,000	151,000	292,000	3,000	446,000	59%
Mojave fringe-toed lizard	1,094,000	403,000	429,000	14,000	847,000	77%
Tehachapi slender salamander	48,000	300	13,000	500	14,000	29%
Bird						
Bendire's thrasher	2,141,000	1,196,000	464,000	48,000	1,707,000	80%
Burrowing owl	5,269,000	479,000	1,267,000	197,000	1,943,000	37%
California black rail	197,000	21,000	11,000	6,000	38,000	19%
California condor	1,240,000	81,000	196,000	38,000	314,000	25%
Gila woodpecker	106,000	10,000	18,000	2,000	30,000	28%
Golden eagle–foraging	10,747,000	5,518,000	3,150,000	141,000	8,808,000	82%
Golden eagle–nesting	4,443,000	2,689,000	956,000	61,000	3,706,000	83%
Greater sandhill crane	617,000	6,000	2,000	1,000	9,000	1%
Least Bell's vireo	226,000	86,000	42,000	23,000	151,000	67%
Mountain plover	828,000	7,000	5,000	11,000	23,000	3%
Southwestern willow flycatcher	317,000	18,000	34,000	22,000	73,000	23%
Swainson's hawk	1,455,000	24,000	65,000	65,000	154,000	11%
Tricolored blackbird	271,000	11,000	7,000	16,000	34,000	12%
Western yellow-billed cuckoo	152,000	15,000	14,000	23,000	52,000	34%

Table IV.7-164
Plan-Wide Conservation Analysis for Covered Species Habitat – Alternative 2

Species	Available Lands (acres)	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Yuma clapper rail	51,000	10,000	2,000	2,000	13,000	26%
Fish						
Desert pupfish	8,000	900	300	300	1,000	18%
Mohave tui chub	300	200	-	20	200	79%
Owens pupfish	18,000	600	1,000	4,000	5,000	31%
Owens tui chub	17,000	700	1,000	4,000	5,000	31%
Mammal						
Bighorn sheep – inter-mountain habitat	3,854,000	1,904,000	1,253,000	38,000	3,195,000	83%
Bighorn sheep – mountain habitat	6,649,000	4,085,000	1,478,000	88,000	5,652,000	85%
California leaf-nosed bat	7,132,000	3,138,000	2,533,000	70,000	5,741,000	80%
Mohave ground squirrel	2,383,000	216,000	803,000	153,000	1,171,000	49%
Pallid bat	16,411,000	6,836,000	5,050,000	312,000	12,198,000	74%
Townsend's big-eared bat	14,677,000	5,879,000	4,460,000	307,000	10,646,000	73%
Plant						
Alkali mariposa-lily	119,000	200	1,000	8,000	9,000	8%
Bakersfield cactus	278,000	20,000	77,000	5,000	103,000	37%
Barstow woolly sunflower	154,000	3,000	66,000	16,000	85,000	55%
Desert cymopterus	205,000	7,000	85,000	31,000	122,000	60%
Little San Bernardino Mountains linanthus	289,000	87,000	57,000	7,000	151,000	52%
Mojave monkeyflower	161,000	27,000	84,000	6,000	117,000	72%

Table IV.7-164
Plan-Wide Conservation Analysis for Covered Species Habitat – Alternative 2

Species	Available Lands (acres)	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Mojave tarplant	265,000	48,000	107,000	4,000	159,000	60%
Owens Valley checkerbloom	147,000	13,000	7,000	19,000	39,000	26%
Parish's daisy	188,000	82,000	35,000	5,000	122,000	65%
Triple-ribbed milk-vetch	8,000	5,000	200	1,000	7,000	87%

1 Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs).

2 Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), which includes BLM and non-BLM inholdings within the designation.

3 Conservation Planning Areas include areas of the reserve design from which reserve areas would be assembled on private and other public land.

Notes: Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1.2.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For Agassiz's desert tortoise, desert tortoise important areas were identified that include tortoise conservation areas (TCAs), desert tortoise linkages, and desert tortoise high priority habitat (see desert tortoise BGOs in Appendix C). Table IV.7-165 provides a conservation analysis for these desert tortoise important areas, organized by desert tortoise Recovery Units: Colorado Desert, Eastern Mojave, and Western Mojave. Within the Colorado Desert Recovery Unit, 88% of TCAs, linkage habitat, and high priority habitat would be conserved under Alternative 2. Within the Eastern Mojave Recovery Unit, 92% of the important areas would be conserved Alternative 2. Within the Western Mojave Recovery Unit, 77% of TCAs and linkage habitat would be conserved under Alternative 2. Under Alternative 2, the CMAs would not require avoidance of TCAs and would only require maintenance of minimum functionality of desert tortoise linkages. Compensation CMAs would be required for impacts to desert tortoise important areas. West Mojave is the portion of the Plan Area that desert tortoise is most precarious and is the area where population surveys indicate substantial declines. In Alternative 2, 23% of the TCAs in this region would not be conserved, which has the potential to reduce the likelihood of desert tortoise recovery within this unit, leads to increased likelihood of desert tortoise populations being extirpated, and reduces the likelihood of desert tortoise repopulating depauperate areas, and is likely to lead to reduced survival and recruitment.

Table IV.7-165
Plan-Wide Conservation Analysis for Desert Tortoise Important Areas – Alternative 2

Recovery Unit	Desert Tortoise Important Areas	Available Lands (acres)	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Colorado Desert	High Priority Habitat	387,000	157,000	156,000	4,000	317,000	82%
	Linkage	469,000	126,000	260,000	6,000	391,000	83%
	TCA	3,130,000	1,544,000	1,233,000	15,000	2,792,000	89%
Colorado Desert Total		*3,985,000*	*1,827,000*	*1,649,000*	*25,000*	*3,500,000*	*88%*
Eastern Mojave	Linkage	784,000	421,000	259,000	10,000	690,000	88%
	TCA	2,096,000	1,758,000	177,000	14,000	1,949,000	93%
Eastern Mojave Total		*2,880,000*	*2,179,000*	*436,000*	*24,000*	*2,639,000*	*92%*
Western Mojave	Linkage	1,204,000	391,000	319,000	38,000	748,000	62%
	TCA	2,313,000	1,061,000	912,000	3,000	1,976,000	85%
Western Mojave Total		*3,517,000*	*1,452,000*	*1,231,000*	*41,000*	*2,724,000*	*77%*
Grand Total		**10,382,000**	**5,458,000**	**3,315,000**	**90,000**	**8,863,000**	**85%**

[1] Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs).

[2] Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), which includes BLM and non-BLM inholdings within the designation.

[3] Conservation Planning Areas include areas of the reserve design from which reserve areas would be assembled on private and other public land.

Notes: Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1.2.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For Mohave ground squirrel, Mohave ground squirrel important areas were identified that include key population centers, linkages, expansion areas, and climate change extension areas (see Mohave ground squirrel BGOs in Appendix C). Table IV.7-166 provides a conservation analysis for these Mohave ground squirrel important areas. Approximately 62% of key populations centers and 66% of linkages would be conserved under Alternative 2. Expansion areas and climate change extension areas would be conserved at 70% and 47% respectively. Under Alternative 2, approximately 40% of the key population centers and 35% of the habitat linkages would not be conserved by the reserve design envelope. The DFAs in this alternative were based on public scoping comments to allow renewable energy development siting flexibility and are no related to reducing conflicts with sensitive resources. Prioritizing areas for development where DFAs overlap key population centers and linkages for Mohave ground squirrel would result in the reduced survival of Mohave ground squirrel through increased habitat fragmentation of the landscape and population of squirrels. It is anticipated that Mohave ground squirrel would have disjunct populations without functioning metapopulation dynamics that eventually results in loss of subpopulations.

Table IV.7-166
Plan-Wide Conservation Analysis for
Mohave Ground Squirrel Important Areas – Alternative 2

Mohave Ground Squirrel Important Area Type	Available Lands (acres)	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Key Population Center	507,000	47,000	228,000	39,000	314,000	62%
Linkage	386,000	30,000	205,000	17,000	253,000	66%
Expansion Area	552,000	77,000	260,000	49,000	386,000	70%
Climate Change Extension	224,000	28,000	53,000	25,000	106,000	47%
Total	**1,669,000**	**181,000**	**746,000**	**131,000**	**1,059,000**	**63%**

1 Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs).

2 Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), which includes BLM and non-BLM inholdings within the designation.

3 Conservation Planning Areas include areas of the reserve design from which reserve areas would be assembled on private and other public land.

Notes: Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1.2.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The

following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Within the Plan Area, critical habitat has been designated by the USFWS for the following Covered Species: desert tortoise, southwestern willow flycatcher, desert pupfish, and Parish's daisy. For desert tortoise, approximately 87% of the desert tortoise designated critical habitat would be conserved in Reserve Design Lands under Alternative 2, including 1,517,000 acres in existing conservation areas, 2,082,000 acres in BLM LUPA conservation designations, and 16,000 acres in Conservation Planning Areas. For southwestern willow flycatcher, approximately 64% of the southwestern willow flycatcher designated critical habitat would be conserved in Reserve Design Lands under Alternative 2, including 900 acres in existing conservation areas, 100 acres in BLM LUPA conservation designations, and 3,000 acres in Conservation Planning Areas. For desert pupfish, approximately 88% of the desert pupfish designated critical habitat would be conserved in Reserve Design Lands under Alternative 2, including 100 acres in existing conservation areas and 500 acres in BLM LUPA conservation designations. For Parish's daisy, approximately 67% of the Parish's daisy designated critical habitat would be conserved in Reserve Design Lands under Alternative 2, including 1,000 acres in BLM LUPA conservation designations.

Non-Covered Species Critical Habitat

Ten Non-Covered Species have Critical Habitat within the Plan Area. Table IV.7-167 shows the total amount of Critical Habitat and the amount within each Plan Wide reserve designation for Non-Covered Species. These reserve designations are considered beneficial impacts for biological resources. All or a substantial portion of each species' Critical Habitat would be within the Reserve Design Lands and within the BLM conservation designations for most species. Critical Habitat for bighorn sheep is predominately within existing conservation and for arroyo toad it would mostly be within Conservation Planning Areas. Critical Habitat for the Pierson's milk-vetch is managed under the Imperial Sand Dunes Recreation Area Management Plan (RAMP), which provides protections for critical habitat within conservation areas and areas designated as closed to motorized (e.g. off-highway vehicle) use.

Table IV.7-167
Critical Habitat Within Plan-Wide Reserve Design
for Non-Covered Species – Alternative 2

Common Name	Acres of Critical Habitat within the DRECP	Acres of Critical Habitat in Existing Conservation	Acres of Critical Habitat in BLM Conservation Designations	Acres of Critical Habitat in Conservation Planning Areas	Acres in Conservation
Amargosa nitrophila	1,000	0	1,000	0	1,000

Table IV.7-167
Critical Habitat Within Plan-Wide Reserve Design for Non-Covered Species – Alternative 2

Common Name	Acres of Critical Habitat within the DRECP	Acres of Critical Habitat in Existing Conservation	Acres of Critical Habitat in BLM Conservation Designations	Acres of Critical Habitat in Conservation Planning Areas	Acres in Conservation
Amargosa vole	5,000	1,000	3,000	0	4,000
Arroyo toad	4,000	0	30	3,000	3,030
Ash Meadows gumplant	300	0	300	0	300
Cushenbury buckwheat	600	0	600	0	600
Cushenbury milk-vetch	1,000	0	1,000	0	1,000
Cushenbury oxytheca	100	0	100	0	100
Lane Mountain milk-vetch	14,000	3,000	11,000	0	14,000
Pierson's milk-vetch[1]	12,000	3,000	200	9,000[2]	12,000
Peninsular Bighorn sheep	47,000	41,000	2,000	300	43,300

[1] NLCS and ACEC designations overlap, the entire Amargosa Valley, which contains the Amargosa vole critical habitat, is located within an ACEC.

[2] Pierson's milk-vetch are protected within areas designated as closed to motorized vehicles in the Imperial Sand Dunes RAMP. The ISDRA RAMP is not considered part of the DRECP decision area.

IV.7.3.4.2 Impacts of DRECP Land Use Plan Amendment on BLM Land: Alternative 2

This section addresses two components of effects of the BLM LUPA: the streamlined development of renewable energy and transmission on only BLM land under the LUPA, and the impacts of the amended land use plans themselves.

IV.7.3.4.2.1 Impacts from Renewable Energy and Transmission Development on BLM Land

On BLM lands under the LUPA, Alternative 2 includes DFAs (approximately 718,000 acres) and transmission corridors where approximately 67,000 acres of ground disturbance related impacts and operational impacts would occur.

Impact BR-1: Siting, construction, decommissioning, and operational activities would result in loss of native vegetation.

Table IV.7-168 shows the impacts to natural communities under Alternative 2 on BLM Land. An effects summary by general community is provided below in relation to the Plan-wide effects analysis provided in Section IV.7.3.4.1.1. Appendix R2 provides a detailed analysis of natural community effects by ecoregion subarea.

California forest and woodlands

Overall, approximately 200 acres (0.4%) of California forest and woodlands would be impacted under Alternative 2 on BLM Land, approximately two-thirds of the Plan-wide effects. Much of this impact would be from wind development in the Pinto Lucerne Valley and Eastern Slopes subarea, but impacts from solar and transmission would also occur in this subarea as well as the West Mojave and Eastern Slopes subarea. The same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied on BLM Land with implementation of the BLM LUPA. This includes CMAs that address roosting covered bat species (AM-DFA-BAT-1), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 200 acres (1.1%) of chaparral and coastal scrubs would be impacted under Alternative 2 on BLM Land, which is approximately one-fifth of the Plan-wide effects to this general community. All of the impacts to chaparral and coastal scrubs would be in the Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas from solar, wind, and transmission development. The same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied on BLM Land with implementation of the BLM LUPA. This includes CMAs that address Covered Species (AM-DFA-BAT-1, AM-DFA-PLANT-1 through AM-DFA-PLANT-3, and AM-RES-BLM-PLANT-1), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

Desert conifer woodlands

Overall, approximately 300 acres (0.5%) of desert conifer woodlands would be impacted under Alternative 2 on BLM Land, which is less than a third of the Plan-wide effects. Most of the impacts to desert conifer woodlands would be from solar development in the Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas. The

same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied on BLM Land with implementation of the BLM LUPA. This includes CMAs that address roosting covered bat species (AM-DFA-BAT-1), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

Desert outcrop and badlands

Overall, approximately 7,000 acres (0.6%) of desert outcrop and badlands would be impacted under Alternative 2 on BLM Land, which constitutes the majority of the Plan-wide effects. Most of these impacts would occur in the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas. The same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied on BLM Land with implementation of the BLM LUPA. This includes CMAs that address breeding, nesting, or roosting species (AM-DFA-BAT-1), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

Desert scrubs

Overall, approximately 53,000 acres (0.8%) of desert scrubs would be impacted under Alternative 2 on BLM Land, which is over half of the Plan-wide effects. Most of these impacts would occur in the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, and West Mojave and Eastern Slopes subareas. The same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied on BLM Land with implementation of the BLM LUPA. These include avoidance, setbacks, and/or suitable habitat impact caps for flat-tailed horned lizard (AM-RES-RL-ICS-8 and AM-RES-RL-ICS-9 and AM-DFA-ICS-16), Agassiz's desert tortoise (AM-DFA-ICS-3 through 4; AM-DFA-ICS-5 and 6 (Alternative 2), AM-DFA-ICS-7 through AM-DFA-ICS-15, and AM-RES-RL-ICS-1 through AM-RES-RL-ICS-7), Mohave ground squirrel (AM-DFA-ICS-36 through AM-DFA-ICS-43 and AM-RES-BLM-ICS-14 through AM-RES-BLM-ICS-17), bat Covered Species (AM-DFA-BAT-1, AM-RES-RL-BAT-1, and AM-RES-RL-BAT-2), and plant Covered Species (AM-DFA-PLANT-1 through AM-DFA-PLANT-3, AM-RES-BLM-PLANT-1, and AM-RES-RL-PLANT-1 through AM-RES-RL-PLANT-3). Furthermore, soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) CMAs would be implemented that would help avoid and minimize these effects and compensation CMAs would offset the effect (COMP-1 and COMP-2).

Dunes

Application of the CMAs would require avoidance of dune communities to the maximum extent feasible in DFAs so there would be no impacts to dunes under BLM LUPA. In addition, the same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied on BLM Land with implementation of the BLM LUPA. This includes CMAs for dune avoidance and minimization (AM-DFA-DUNE-1 through AM-DFA-DUNE-3, AM-RES-BLM-DUNE-1, and AM-RES-BLM-DUNE-2) as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

Grasslands

Overall, approximately 500 acres (1.6%) of grasslands would be impacted under Alternative 2 on BLM Land, which is only about 10% of the Plan-wide effects. The majority of these impacts would occur in the Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas. There would also be about 90 acres of impacts in the Cadiz Valley and Chocolate Mountains subarea. The same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied on BLM Land with implementation of the BLM LUPA. This includes CMAs that address breeding, nesting, or roosting species (AM-DFA-AG-2), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

Riparian

Application of the CMAs would require avoidance of riparian communities to the maximum extent feasible in DFAs so there would be no impacts to riparian communities under BLM LUPA. In addition, the same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied on BLM Land with implementation of the BLM LUPA. This includes CMAs for avoidance and minimization from riparian habitat and the Covered Species associated with riparian habitat (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9) as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

Wetlands

Overall, approximately 4,000 acres (1.3%) of wetlands would be impacted under Alternative 2 on BLM Land, which is less than half of the Plan-wide effects. Impacts would be primarily to Southwestern North American salt basin and high marsh and North American warm desert alkaline scrub and herb playa and wet flat. Most impacts would occur in the West Mojave and Eastern Slopes and Cadiz Valley and Chocolate Mountains

subareas. The same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied on BLM Land with implementation of the BLM LUPA, including avoidance of Arid West freshwater emergent marsh and Californian warm temperate marsh/seep (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9) as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

Table IV.7-168
BLM LUPA Impact Analysis for Natural Communities – Alternative 2

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
California forest and woodland						
Californian broadleaf forest and woodland	11,000	0	0	0	0	10
Californian montane conifer forest	34,000	40	90	0	40	200
Chaparral and coastal scrub community (Cismontane scrub)						
Californian mesic chaparral	500	0	0	0	0	0
Californian pre-montane chaparral	300	0	0	0	0	0
Californian xeric chaparral	5,000	0	0	0	0	10
Central and south coastal California seral scrub	20	0	0	0	0	0
Central and South Coastal Californian coastal sage scrub	13,000	100	20	0	30	200
Western Mojave and Western Sonoran Desert borderland chaparral	200	0	0	0	0	0
Desert conifer woodlands						
Great Basin Pinyon - Juniper Woodland	50,000	200	60	0	40	300
Desert outcrop and badlands						
North American warm desert bedrock cliff and outcrop	1,203,000	4,000	1,000	400	2,000	7,000
Desert Scrub						
Arizonan upland Sonoran desert scrub	3,000	0	0	0	0	0
Intermontane deep or well-drained soil scrub	69,000	200	10	0	40	300
Intermontane seral shrubland	5,000	20	10	0	20	50

Table IV.7-168
BLM LUPA Impact Analysis for Natural Communities – Alternative 2

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Inter-Mountain Dry Shrubland and Grassland	282,000	500	100	600	400	2,000
Intermountain Mountain Big Sagebrush Shrubland and steppe	24,000	0	0	0	0	10
Lower Bajada and Fan Mojavean - Sonoran desert scrub	6,114,000	29,000	6,000	5,000	9,000	49,000
Mojave and Great Basin upper bajada and toeslope	406,000	300	90	0	500	900
Shadscale - saltbush cool semi-desert scrub	101,000	600	100	300	200	1,000
Southern Great Basin semi-desert grassland	50	0	0	0	0	0
Dunes						
North American warm desert dunes and sand flats	127,000	0	0	0	0	0
Grassland						
California Annual and Perennial Grassland	28,000	200	100	0	200	400
California annual forb/grass vegetation	1,000	40	0	0	0	40
Riparian						
Madrean Warm Semi-Desert Wash Woodland/Scrub	502,000	0	0	0	0	0
Mojavean semi-desert wash scrub	11,000	0	0	0	0	0
Sonoran-Coloradan semi-desert wash woodland/scrub	122,000	0	0	0	0	0
Southwestern North American riparian evergreen and deciduous woodland	400	0	0	0	0	0

Table IV.7-168
BLM LUPA Impact Analysis for Natural Communities – Alternative 2

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Southwestern North American riparian/wash scrub	10,000	0	0	0	0	0
Madrean Warm Semi-Desert Wash Woodland/Scrub	502,000	0	0	0	0	0
Wetland						
Arid West freshwater emergent marsh	10	0	0	0	0	0
Californian warm temperate marsh/seep	0	0	0	0	0	0
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	147,000	1,000	200	0	200	2,000
Open Water	700	20	0	10	10	50
Playa	26,000	0	0	0	0	0
Southwestern North American salt basin and high marsh	122,000	2,000	100	0	40	2,000
Wetland	100	10	0	0	0	10
Other Land Cover – Developed and Disturbed Areas						
Agriculture	6,000	200	0	200	100	500
Developed and Disturbed Areas	44,000	400	70	20	100	600
Not Mapped	800	100	50	10	20	200
Rural	3,000	40	0	50	10	100
Total	**9,471,000**	**39,000**	**8,000**	**7,000**	**13,000**	**67,000**

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

[2] Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation, short-term and long-term wind (excluding project area impacts), geothermal project area, and transmission impacts. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Rare natural community alliances could be impacted under Alternative 2 on BLM lands, including impacts to Joshua tree woodland. CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection that would help avoid and minimize these effects on rare natural communities. Additionally, AM-DFA-ONC-1 and -2 would require inventorying and preserving or transplanting cactus, yuccas, and succulents. While the compensation CMAs would offset the lost habitat acreage of these impacts, the compensation CMAs do not specifically require the replacement of or mitigation for specific rare natural community alliances. After application of the CMAs, impacts to rare natural communities from Alternative 2 would be adverse and would require mitigation.

Impact BR-2: Siting, construction, decommissioning, and operational activities would result in adverse effects to jurisdictional waters and wetlands.

Siting, construction, decommissioning, and operations of Covered Activities have the potential to result in adverse effects to federal or state jurisdictional waters and wetlands. In the Plan Area, jurisdictional waters and wetlands would likely include the riparian and wetland communities analyzed under Impact BR-1 and may also include other features including playas, seeps/springs, major rivers, and ephemeral drainage networks.

All Covered Activities would be required to comply with existing, applicable federal and state laws and regulations related to jurisdictional waters and wetlands. Additionally, all impacts to riparian communities would be avoided under Alternative 2 through application of the riparian CMAs including riparian setbacks. All impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep wetlands, except those impacts determined to be unavoidable, would be avoided under Alternative 2 through application of the wetland CMAs, including wetland setbacks (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). Approximately 4,000 acres of other wetland communities would be impacted under Alternative 2. See the analysis for the loss of native vegetation provided under BR-1 for a discussion of these potential impacts. All or a portion of the estimated wetland impacts could result in adverse effects to jurisdictional waters and wetlands without compensation. Compensation CMAs would offset any impacts determined to be unavoidable.

Additionally, playas, seeps/springs, major rivers, and ephemeral drainage networks are waters and wetland features that provide hydrological functions and may be determined to be jurisdictional waters and wetlands. Adverse effects to these features would have the potential to impact jurisdictional waters and wetlands.

Playa

Approximately 2% (approximately 2,000 acres) of playa would be impacted by Covered Activities under Alternative 2 on BLM land. Impacts would be associated with solar (2,000 acres), with approximately 300 acres of wind impacts and approximately 100 acres of transmission impacts. Ecoregion subareas of potential impacts to playas include the Cadiz Valley and Chocolate Mountains, Kingston and Funeral Mountains, Mojave and Silurian Valley, Owens River Valley, Panamint Death Valley, Pinto Lucerne Valley and Eastern Slopes, Providence and Bullion Mountains, and West Mojave and Eastern Slopes subareas with most impacts in the West Mojave and Eastern Slopes subarea.

Addition of species-specific CMAs would help avoid and minimize impacts to species associated with playas (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). CMAs would also require compliance with all applicable laws and regulations pertaining to wetlands and waters, including playas (AM-PW-9 and AM-LL-2). Compensation CMAs would offset impacts to these features (COMP-1 and COMP-2).

Seep/Spring

Seeps occur within DFAs and transmission corridors and potential impacts to seep/spring have the potential to occur under Alternative 2 on BLM land in the following ecoregion subareas: Kingston and Funeral Mountains, Owens River Valley, Pinto Lucerne Valley and Eastern Slopes, Providence and Bullion Mountains, and West Mojave and Eastern Slopes. Impacts to seeps and springs would be adverse absent implementation of avoidance measures. Impacts to seep/spring locations and associated Covered Species and hydrological functions would be avoided through adherence to avoidance and minimization CMAs, including habitat assessments and avoidance of seeps with 0.25 mile setbacks (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). Compensation CMAs would offset impacts determined to be unavoidable (COMP-1 and COMP-2).

Major Rivers

Major rivers occur within DFAs and transmission corridors and potential impacts to major rivers under Alternative 2 on BLM land have the potential to occur to the Mojave River. Development of the DFAs could indirectly impact these resources through alteration of hydrology. Impacts to major rivers would be adverse absent implementation of avoidance measures. Impacts to major rivers and associated Covered Species and hydrological functions would be avoided through adherence to avoidance and minimization CMAs. Riparian CMAs would require avoidance of these features with setbacks (AM-DFA-RIPWET-1).

Ephemeral Drainages

Ephemeral drainages occur throughout the Plan Area, and some of these features could be determined to state or federal jurisdictional waters. Impacts to ephemeral drainages would likely occur from Covered Activities. Application of riparian avoidance CMAs (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9) would avoid and minimize impacts to a portion of the ephemeral drainages within DFAs. Additionally, all Covered Activities would be required to comply with existing, applicable federal and state laws and regulations related to jurisdictional waters and wetlands.

Impact BR-3: Siting, construction, decommissioning, and operational activities would result in degradation of vegetation.

Siting, construction, and operational Covered Activities would result in the degradation of vegetation through the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants. The degree to which these factors contribute to the degradation of vegetation corresponds to the distribution of Covered Activities on BLM Land that would result in dust, fire, and introduction of invasive plants or that would use dust suppressants and implement fire management. The propensity for vegetation to be at risk of degradation was determined by the overlap between natural community models and the likely distribution of Covered Activities across subareas on BLM Land.

Based on the planned renewable energy capacity, the greatest amount of terrestrial operational impacts on BLM Land would occur in the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas, as shown in Table IV.7-169. As a result, these subareas would have the greatest potential to degrade vegetation as a result in the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants.

Table IV.7-169
BLM LUPA Terrestrial Operational Impacts – Alternative 2

Ecoregion Subarea	Solar Impact (acres)[1]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Cadiz Valley and Chocolate Mountains	11,000	14,000	-	5,000	30,000
Imperial Borrego Valley	8,000	9,000	6,000	3,000	26,000
Kingston and Funeral Mountains	1,000	1,000	-	500	2,500
Mojave and Silurian Valley	2,000	3,000	-	800	5,800

Table IV.7-169
BLM LUPA Terrestrial Operational Impacts – Alternative 2

Ecoregion Subarea	Solar Impact (acres)[1]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Owens River Valley	400	-	900	400	1,700
Panamint Death Valley	600	200	-	40	840
Pinto Lucerne Valley and Eastern Slopes	2,000	6,000	-	2,000	10,000
Piute Valley and Sacramento Mountains	-	-	-	-	-
Providence and Bullion Mountains	900	3,000	-	800	4,700
West Mojave and Eastern Slopes	12,000	1,000	-	200	13,200
Total	**39,000**	**37,000**	**7,000**	**13,000**	**96,000**

[1] Solar impacts include ground-mounted distributed generation.

Notes: Terrestrial operational impacts collectively refers to vegetation degradation impacts (BR-3) from dust, dust suppressants, fire, fire management, and invasive plants and wildlife impacts (BR-4) from creation of noise, predator avoidance behavior, lighting and glare. For the purposes of analysis, terrestrial operational impacts were quantified using the project area extent for solar and geothermal, using 25% of the project area for wind, and the right-of-way area for transmission. Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation, short-term and long-term wind (excluding project area impacts), geothermal project area, and transmission impacts. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Dust and Dust Suppressants

Natural communities, and in particular natural communities containing Mojave desert shrubs, are susceptible to vegetation degradation from dust. Impacts to these natural communities would mostly occur in the Imperial Borrego Valley and Cadiz Valley and Chocolate Mountains subareas. Plant Covered Species, that could also experience vegetation degradation from dust, would mainly be impacted by Covered Activities in the West Mojave and Eastern Slopes subarea, which contains most of the impacts to plant Covered Species habitat on BLM Land. Therefore, considering the distribution of Covered Activities that would cause dust as well as the sensitive natural communities and plant Covered Species the West Mojave and Eastern Slopes, Imperial Borrego Valley, and Cadiz Valley and Chocolate Mountains subareas would experience the greatest magnitude of vegetation degradation resulting from dust.

The application of dust suppressants is a common management practice, a Covered Activity under the Plan, and has been shown to effectively reduce dust. Dust-related degradation of vegetation would be further minimized with the incorporation of avoidance and minimization CMAs. The Plan-wide avoidance and minimization CMAs would generally identify vegetation in the project area (AM-PW-1), utilize standard practices to minimize the amount of exposed soils (AM-PW-14) and reduce dust caused by soil erosion (AM-PW-10). Additionally, Alternative 2 would implement CMAs that would identify and protect or salvage specific plant species, minimizing their exposure to dust. Setbacks and suitable habitat impact caps would also be implemented for plant Covered Species in DFAs and in the reserve design envelope (AM-DFA-PLANT-1 through AM-DFA-PLANT-3).

Riparian and wetland natural communities would be susceptible to the adverse effects of dust suppressants including chemical and physical changes to an ecosystem, alter hydrological function of soils and drainage areas, and increase pollutant loads in surface water. These impacts occur in all of the same subareas as the Plan-wide analysis, but would impact fewer acres in each subarea. The largest amount of impacts from Covered Activities, which corresponds to the potential greatest magnitude of vegetation degradation from adverse dust suppressant effects, would be located in the West Mojave and Eastern Slopes subarea. Plant Covered Species that could also experience vegetation degradation from dust suppressants, would also mainly be impacted by Covered Activities in the West Mojave and Eastern Slopes subarea.

Avoidance and minimization CMAs implemented as part of Alternative 2, including AM-PW-9 and AM-PW-10, would utilize standard practices to reduce erosion and runoff of dust suppressant into sensitive vegetation. Setbacks and avoidance requirements for all riparian natural communities and some wetland natural communities that would be implemented as part of the CMAs would minimize potential adverse effects of dust suppressants on these communities (AM-DFA-RIPWET-1).

Fire and Fire Management

Anthropogenic ignitions of fires that could result from operational and maintenance activities associated with renewable energy facilities could destroy the natural communities found in the Plan Area. Desert scrub natural communities are naturally slow to recover from fire episodes, which can lead to permanent community type conversion. On BLM Land, the impacts to desert scrub natural communities would mainly occur within the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas.

Construction and maintenance of fire breaks and other fire management techniques would typically result in the removal of vegetation from woodland, chaparral, and grassland natural communities. However, fire management in the form of fuels management, may benefit natural habitats if conducted in areas of non-native, invasive, species infestations

(e.g. salt ceder hot spots). California forest and woodlands, chaparral natural communities, and grassland natural communities would be impacted on BLM Land, under Alternative 2. These impacts from Covered Activities, which correspond to the amount of potential vegetation degradation resulting from fire and fire management, would predominantly occur in the Pinto Lucerne Valley and Eastern Slopes subarea, and to a lesser extent in the West Mojave and Eastern Slopes subarea. Under Alternative 2 avoidance and minimization CMAs would be implemented to reduce the potential adverse effects of fire and fire management, including AM-PW-12 that would require projects to minimize the amount of vegetation clearing and fuel modification.

Invasive Plants

The adverse effects of invasive plants, include increasing the fuel load and the frequency of fires in plant communities and allelopathic effects that hinder the growth or establishment of other plant species. The natural communities and plant Covered Species found on BLM Land are generally at risk of adverse effects from the introduction of invasive plants. Therefore, the most vegetation degradation caused by introduction of invasive plants would occur in the West Mojave and Eastern Slopes subarea and to a lesser extent in the Imperial Borrego Valley and Cadiz Valley and Chocolate Mountains subareas. Plant Covered Species found on BLM Land would also experience potential vegetation degradation as a result of Covered Activities. The Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas would have the largest amount of impacts to plant Covered Species on BLM Land.

Under Alternative 2 avoidance and minimization CMAs would be implemented to reduce vegetation degradation from invasive plants, including AM-PW-7 that would ensure the timely restoration of temporarily disturbed areas that could otherwise promote invasive plants. Additional CMAs would use standard practices to control weeds and invasive plants (AM-PW-11) and require the responsible use of herbicides to minimize potential vegetation degradation (AM-PW-15) for all Covered Activities.

Impact BR-4: Siting, construction, decommissioning, and operational activities would result in loss of listed and sensitive plants; disturbance, injury, and mortality of listed and sensitive wildlife; and habitat for listed and sensitive plants and wildlife.

Impact BR-4 described at the Plan-wide level provides an impact analysis for Covered Species habitat by ecoregion subarea, specific Covered Species impact analyses, an indirect and terrestrial operational impact analysis for Covered Species, and a Non-Covered Species impact analysis. The following provides an impact analysis for Covered Species on BLM-administered lands. Most of the impacts to plant and wildlife species and their habitat under the BLM LUPA would occur in the Imperial Borrego Valley, West Mojave and Eastern Slopes, and Cadiz Valley and Chocolate Mountains subareas.

Covered Species Habitat Impact Analysis by Ecoregion Subarea

West Mojave and Eastern Slopes Ecoregion Subarea

Renewable energy development in the West Mojave and Eastern Slopes subarea would mostly be from solar development, but would also include impacts from wind and transmission development. Typical impacts from these Covered Activities on plant and wildlife species and their habitat is described in Section IV.7.2. Suitable habitat for amphibians and reptiles would be impacted in this subarea, including Agassiz's desert tortoise and Tehachapi slender salamander. The siting of the DFAs under the BLM LUPA largely avoid habitat for Tehachapi slender salamander and CMAs require avoidance of and setbacks from riparian and wetland habitat (AM-DFA-RIPWET-1) would further avoid and minimize the impacts on this species to less than the acreage reported in Table IV.7-170. Compensation CMAs would offset habitat loss for these species.

There are impacts to suitable habitat for several bird Covered Species in the West Mojave and Eastern Slopes subarea, including Bendire's thrasher, burrowing owl, California condor, golden eagle, mountain plover, Swainson's hawk, and tricolored blackbird. CMAs require avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further avoid and minimize the impacts on tricolored blackbird to less than the acreage reported in Table IV.7-170. Additionally, the CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs (AM-DFA-AG-2). Compensation CMAs would offset habitat loss for these species.

Suitable habitat for bighorn sheep, desert kit fox, Mohave ground squirrel, pallid bat, and Townsend's big-eared bat would be impacted in this subarea. The siting of the DFAs under the BLM LUPA largely avoid habitat for bighorn sheep. The CMAs require avoidance of and setbacks from riparian and wetland habitat (AM-DFA-RIPWET-1) that would further reduce the impacts on these habitats used by Mohave ground squirrel, pallid bat, and Townsend's big-eared bat to less than the acreage reported in Table IV.7-170. Compensation CMAs would offset habitat loss for these species.

Suitable habitat for the following plant species would be impacted in the West Mojave and Eastern Slopes subarea: alkali mariposa-lily, Bakersfield cactus, Barstow woolly sunflower, desert cymopterus, Mojave monkeyflower, and Mojave tarplant. Although modeled suitable habitat for these species may be impacted by Covered Activities in this subarea, the CMAs require surveys for plant Covered Species for all Covered Activities, and the CMAs requiring avoidance of and setbacks from occupied habitat (AM-DFA-PLANT-1 through AM-DFA-PLANT-3) would further reduce the impacts on these species to less than the acreage reported in Table IV.7-170. Compensation CMAs would offset habitat loss for these species.

Cadiz Valley and Chocolate Mountains Ecoregion Subarea

Renewable energy development within the Cadiz Valley and Chocolate Mountains subarea would be primarily from solar energy development, but would also include impacts from wind and transmission. The Cadiz Valley and Chocolate Mountains subarea provides suitable habitat for amphibians and reptiles, including Agassiz's desert tortoise and Mojave fringe-toed lizard that would be impacted. The siting of the DFAs under the BLM LUPA largely avoid habitat for Mojave fringe-toed lizard, and CMAs require avoidance of and setbacks from dune habitat (AM-DFA-DUNE-1 through AM-DFA-DUNE-3) would further avoid and minimize the impacts on this species to less than the acreage reported in Table IV.7-170. Compensation CMAs would offset habitat loss for these species.

Impacts would occur to the following covered bird species in this subarea: Bendire's thrasher, burrowing owl, Gila woodpecker, golden eagle, greater sandhill crane, and mountain plover. In addition, compensation CMAs would offset habitat loss for these species.

Suitable habitat for the following Covered mammals would be impacted in the Cadiz Valley and Chocolate Mountains subarea: bighorn sheep, California leaf-nosed bat, pallid bat, and Townsend's big-eared bat. In addition the Planning Species desert kit fox and burro deer would be impacted in this subarea. The siting of the DFAs under the BLM LUPA largely avoid habitat for bighorn sheep. The CMAs require avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further reduce the impacts on these habitats used by California leaf-nosed bat, pallid bat, and Townsend's big-eared bat to less than the acreage reported in Table IV.7-170. Compensation CMAs would offset habitat loss for these species.

No impacts to suitable habitat for covered plant species are expected. Although modeled suitable habitat for plant species may be impacted by Covered Activities in this subarea, the CMAs require surveys for plant Covered Species for all Covered Activities, and the CMAs requiring avoidance of and setbacks from occupied habitat (AM-DFA-PLANT-1 through AM-DFA-PLANT-3) would further reduce the impacts on this species to less than the acreage reported in Table IV.7-170. Compensation CMAs would offset habitat loss for these species.

Imperial Borrego Valley Ecoregion Subarea

Renewable energy development within the Imperial Borrego Valley subarea would be primarily from solar energy development, but would also include impacts from wind, geothermal, and transmission development. The Imperial Borrego Valley subarea provides suitable habitat for Agassiz's desert tortoise and flat-tailed horned lizard that would be impacted. The siting of the DFAs under the BLM LUPA largely avoid habitat for flat-tailed horned lizard, and CMAs require avoidance of and setbacks from dune habitat (AM-DFA-

DUNE-1 through AM-DFA-DUNE-3) would further avoid and minimize the impacts on this species to less than the acreage reported in Table IV.7-170.

Impacts would occur to suitable habitat for the following covered bird species in this subarea: Bendire's thrasher, burrowing owl, California black rail, Gila woodpecker, golden eagle, greater sandhill crane, mountain plover, southwestern willow flycatcher, Swainson's hawk, and Yuma clapper rail. CMAs require avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further avoid and minimize the impacts on southwestern willow flycatcher, California black rail, and Yuma clapper rail to less than the acreage reported in Table IV.7-170. Additionally, the CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs (AM-DFA-AG-2).

Impacts to suitable habitat for covered mammal species would occur for bighorn sheep, California leaf-nosed bat, pallid bat, and Townsend's big-eared bat. Desert kit fox and burro deer (Planning Species) would also be impacted in this subarea. The siting of the DFAs under the BLM LUPA largely avoid habitat for bighorn sheep. The CMAs require avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further reduce the impacts on these habitats used by California leaf-nosed bat, pallid bat, and Townsend's big-eared bat to less than the acreage reported in Table IV.7-170.

Table IV.7-170
BLM LUPA Impact Analysis for Covered Species Habitat – Alternative 2

Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Amphibian/Reptile						
Agassiz's desert tortoise	5,799,000	19,000	3,000	800	5,000	27,000
Flat-tailed horned lizard	428,000	4,000	-	5,000	2,000	12,000
Mojave fringe-toed lizard	731,000	4,000	1,000	-	2,000	7,000
Tehachapi slender salamander	7,000	10	-	-	-	10
Bird						
Bendire's thrasher	773,000	700	500	50	800	2,000
Burrowing owl	1,707,000	18,000	2,000	5,000	4,000	29,000
California black rail	31,000	400	-	500	100	1,000
California condor	242,000	3,000	100	70	100	3,000
Gila woodpecker	38,000	500	200	-	40	800
Golden eagle–foraging	6,216,000	18,000	5,000	800	6,000	29,000

Table IV.7-170
BLM LUPA Impact Analysis for Covered Species Habitat – Alternative 2

Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Golden eagle–nesting	2,421,000	1,000	600	20	2,000	4,000
Greater sandhill crane	3,000	90	-	100	30	200
Least Bell's vireo	69,000	10	10	10	60	90
Mountain plover	7,000	200	10	100	50	400
Southwestern willow flycatcher	46,000	300	20	600	200	1,000
Swainson's hawk	112,000	2,000	70	600	200	3,000
Tricolored blackbird	13,000	100	50	-	50	200
Western yellow-billed cuckoo	19,000	10	-	-	10	20
Yuma clapper rail	5,000	-	-	10	10	20
Fish						
Desert pupfish	500	-	-	-	-	-
Owens pupfish	4,000	-	-	-	20	20
Owens tui chub	4,000	-	-	-	20	20
Mammal						
Bighorn sheep – inter-mountain habitat	2,243,000	4,000	1,000	70	1,000	6,000
Bighorn sheep – mountain habitat	3,568,000	3,000	2,000	-	3,000	8,000
California leaf-nosed bat	4,444,000	17,000	5,000	3,000	7,000	32,000
Mohave ground squirrel	999,000	12,000	300	900	500	14,000
Pallid bat	8,943,000	33,000	7,000	6,000	12,000	59,000
Plant						
Alkali mariposa-lily	2,000	30	10	-	10	40
Bakersfield cactus	77,000	400	30	-	10	400
Barstow woolly sunflower	72,000	2,000	-	-	10	2,000
Desert cymopterus	67,000	300	-	-	10	300
Little San Bernardino Mountains linanthus	80,000	500	200	-	20	800
Mojave monkeyflower	116,000	400	100	-	200	800
Mojave tarplant	136,000	500	10	50	80	600

Table IV.7-170
BLM LUPA Impact Analysis for Covered Species Habitat – Alternative 2

Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Owens Valley checkerbloom	55,000	10	-	20	60	90
Parish's daisy	85,000	300	400	-	100	800
Triple-ribbed milk-vetch	4,000	-	-	-	-	-

1 Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
2 Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Specific Covered Species Impact Analyses

For Agassiz's desert tortoise, desert tortoise important areas were identified that include tortoise conservation areas (TCAs), desert tortoise linkages, and desert tortoise high priority habitat (see desert tortoise BGOs in Appendix C). Table IV.7-171 provides an impact analysis for these desert tortoise important areas in the BLM LUPA area, organized by desert tortoise Recovery Units: Colorado Desert, Eastern Mojave, and Western Mojave. Within the Colorado Desert Recovery Unit, 6,000 acres of TCAs, linkage habitat, and high priority habitat would be impacted under Alternative 2. Within the Eastern Mojave Recovery Unit, 2,000 acres of TCAs and linkage habitat would be impacted under Alternative 2. Within the Western Mojave Recovery Unit, 10,000 acres of TCAs and linkage habitat would be impacted under Alternative 2.

Under Alternative 2, the CMAs would not prohibit the development of Covered Activities in the TCAs (AM-DFA-ICS-5 (Alternative 2)). Additionally under Alternative 2, the CMAs would require that impacts to desert tortoise linkage only limit impact to the minimum functionality within each linkage (AM-DFA-ICS-6 (Alternative 2)). Compensation CMAs would be required impacts to desert tortoise important areas.

As described in the Plan-wide impact analysis of Alternative 2 under Impact BR-4, this alternative would result in adverse impacts to desert tortoise. The adverse impacts to desert tortoise under Alternative 2 are primarily a result of where renewable energy

development would be allowed under this alternative (i.e., the DFA locations). Under Alternative 2, renewable energy development in DFAs would be covered in numerous locations considered important for desert tortoise conservation, including but not limited to Desert Tortoise Research Natural Area and West Rand Mountains ACEC, the Fremont-Kramer critical habitat unit, the Ord-Rodman critical habitat unit, habitat linkages around Ord-Rodman, and habitat linkage areas in the Silurian Valley. Impacts to the Desert Tortoise Research Natural Area would result in the loss of over 30 years of science and research on desert tortoise that have been and continue to be conducted at this location, which would be considered an irreplaceable impact. In addition to the acreage of lost desert tortoise habitat, impacts in linkages have the potential to reduce or eliminate the linkage function at that geographic location, which cannot be replaced or compensated. The lost linkage function in these locations has the potential to isolate desert tortoise populations, which over time would lead to reduced individual fitness related to inbreeding, reduced genetic diversity, reduced resilience of subpopulations to threats, increased risk of extirpation within subpopulations, and a substantially reduced ability of the desert tortoise to recover in the Plan Area.

Table IV.7-171
BLM LUPA Impact Analysis for Desert Tortoise Important Areas – Alternative 2

Recovery Unit	Desert Tortoise Important Areas	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Colorado Desert	High Priority Habitat	354,000	1,000	300	-	100	2,000
	Linkage	406,000	300	80	-	10	400
	TCA	1,728,000	700	300	-	3,000	4,000
Colorado Desert Total		*2,488,000*	*2,000*	*700*	-	*3,000*	*6,000*
Eastern Mojave	Linkage	728,000	1,000	*400*	-	300	2,000
	TCA	239,000	-	-	-	400	400
Eastern Mojave Total		*967,000*	*1,000*	*400*	-	*700*	*2,000*
Western Mojave	Linkage	796,000	2,000	900	-	1,000	4,000
	TCA	964,000	4,000	300	-	700	5,000
Western Mojave Total		*1,759,000*	*7,000*	*1,000*	-	*2,000*	*10,000*
Total		**5,215,000**	**10,000**	**2,000**	**-**	**6,000**	**18,000**

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
[2] Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres include solar and ground-mounted DG (GMDG), wind project area, geothermal, and transmission impacts. Short-term and long-term ground disturbance from wind would be within the wind project area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to

rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For golden eagle, a territory-based analysis was conducted (see methods and results in the Chapter IV.7 portion of Appendix R2). Using the golden eagle nest database, golden eagle territories were identified and individually buffered by 1 mile (representing breeding areas around known nests) and 4 miles (representing use areas around known nests). A total of 146 territories occur wholly or partially within the BLM LUPA area. Under Alternative 2, 46 territories have DFAs or transmission corridors within 1 mile of a nest. Implementation of the CMAs for golden eagles (AM-DFA-ICS-2) would prohibit siting or construction of Covered Activities within 1 mile of an active golden eagle nest; therefore, impacts within 1 mile of these golden eagle territories would be avoided. Under Alternative 2, 84 territories have DFAs or transmission corridors within 4 miles of nest, and the use area of these territories could be impacted through harassment and reduced foraging opportunities by Covered Activities depending of the siting of specific projects. The CMAs for golden eagles (Section II.3.1.2.5) and the approach to golden eagles (see Appendix H) describes how the impact to golden eagles would be avoided, minimized, and compensated. Based on the 2013 analysis, no more than 15 golden eagles per year in 2014 would be allowed to be taken within the Plan Area, which would be reassessed annually.

For bighorn sheep, bighorn sheep mountain habitat and intermountain (linkage) habitat have been identified in the Plan Area. Under Alternative 2 on BLM land, approximately 8,000 acres of mountain habitat and 6,000 acres of intermountain habitat would be impacted. Alternative 2 identified DFAs that avoid impacts to bighorn sheep mountain and intermountain habitat except in the Pinto Lucerne Valley and Eastern Slopes subarea, eastern Mojave and Silurian Valley subarea, and eastern Imperial Borrego Valley subarea, Avoidance, minimization, and compensation CMAs have been developed to offset the loss of habitat for bighorn sheep.

For Mohave ground squirrel, Mohave ground squirrel important areas were identified that include key population centers, linkages, expansion areas, and climate change extension areas (see Mohave ground squirrel BGOs in Appendix C). Table IV.7-172 provides an impact analysis for these Mohave ground squirrel important areas in the BLM LUPA area. Approximately 6,000 acres of impact would occur to key population centers under Alternative 2. A total of 200 acres of impact would occur in climate change extension areas under Alternative 2. A total of 4,000 acres of impact to linkage and 2,000 acres of impact to expansion areas would occur under Alternative 2. CMAs would require protocol surveys in population centers and linkages, as well as provide other measures to offset the loss of habitat for Mohave ground squirrel (AM-DFA-ICS-36 through AM-DFA-ICS-43). Additionally, the CMAs would prohibit impacts that affect the viability of

linkages. Compensation CMAs would be required for impacts to Mohave ground squirrel important areas.

As described in the Plan-wide impact analysis of Alternative 2 under Impact BR-4, this alternative would result in adverse impacts to Mohave ground squirrel. The adverse impacts to Mohave ground squirrel under Alternative 2 are primarily a result of where renewable energy development would be allowed under this alternative (i.e., the DFA locations). Under Alternative 2, renewable energy development in DFAs would be covered in numerous locations considered important for Mohave ground squirrel conservation, including but not limited key population centers and linkages in West Mojave – 1, West Mojave – 2, and West Mojave – 3 ecoregion subunits. In addition to the acreage of lost of Mohave ground squirrel habitat, impacts in linkages have the potential to reduce or eliminate the linkage function at that geographic location, which cannot be replaced or compensated. The lost linkage function in these locations has the potential to isolate key population centers for Mohave ground squirrel, which over time would lead to reduced individual fitness related to inbreeding, reduced genetic diversity, reduced resilience of subpopulations to threats, increased risk of extirpation within subpopulations, and a substantially reduced ability of Mohave ground squirrel to recover in the Plan Area.

Table IV.7-172
BLM LUPA Impact Analysis for Mohave Ground Squirrel Important Areas – Alternative 2

Mohave Ground Squirrel Important Area Type	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Key Population Center	299,000	6,000	80	100	200	6,000
Linkage	280,000	3,000	20	400	200	4,000
Expansion Area	282,000	2,000	80	300	80	2,000
Climate Change Extension	92,000	50	-	100	80	200
Total	**954,000**	**11,000**	**200**	**900**	**600**	**12,000**

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
[2] Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres include solar and ground-mounted distributed generation, short-term and long-term wind impacts, geothermal project area, and transmission impacts. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Within the Plan Area, critical habitat has been designated by the USFWS for the following Covered Species: desert tortoise, southwestern willow flycatcher, desert pupfish, and

Parish's daisy. For desert tortoise, approximately 8,000 acres of impact designated critical habitat would result from the development of Covered Activities on BLM-administered lands under Alternative 2 located in the Chuckwalla, Fremont-Kramer, Ivanpah, Ord-Rodman, and Superior-Cronese critical habitat units. Under Alternative 2, no impacts to critical habitat designated for southwestern willow flycatcher, desert pupfish, or Parish's daisy would occur from the development of Covered Activities on BLM-administered lands.

Indirect and Terrestrial Operational Impact Analysis

Siting, construction, and operational Covered Activities could result in the potential disturbance, injury, and mortality of listed and sensitive wildlife from noise, predator avoidance behavior, as well as light and glare. The degree to which these factors contribute to the disturbance of sensitive wildlife corresponds to the distribution of Covered Activities on BLM Land that would result in noise, predator avoidance behavior, or light and glare.

Based on the planned renewable energy capacity on BLM Land, most of the terrestrial operational impacts would occur in the West Mojave and Eastern Slopes subarea, as shown in Table IV.7-169. The Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas would also experience prevalent amounts of terrestrial operational impacts on BLM Land. As a result, these subareas would have the greatest potential to disturbance of sensitive wildlife from noise, predator avoidance behavior, as well as light and glare.

Noise

Noise can cause physical damage to wildlife as well as behavioral changes in habitat use, activity patterns, reproduction, and foraging. Although different Covered Activities can generate varying noise levels, noise-related effects on wildlife would generally be similar across renewable energy technology types. Therefore, the severity and location of adverse effects resulting from noise, including disturbance of wildlife, would correspond to the amount and distribution of Covered Activities represented by the DFAs on BLM Land, as previously described.

Bird Covered Species, in particular during the nesting seasons, are expected to be sensitive to adverse noise effects. The largest amount of impacts to bird Covered Species habitat on BLM Land would be located in the Imperial Borrego Valley and West Mojave and Eastern Slopes subareas. Smaller mammals, such as the Mohave ground squirrel, and reptiles, such the Mojave fringe-toed lizard and flat-tailed horned lizard, could experience increased predation from noise hindering their ability to detect predators. Overall, impacts on BLM Land to the habitat for these Covered Species would mostly occur in the Imperial Borrego Valley, Cadiz Valley and Chocolate Mountains, and West Mojave and Eastern Slopes subareas. As such, the disturbance of wildlife from noise would predominantly occur in the Imperial Borrego and West Mojave and Eastern Slopes subareas.

The disturbance and injury of wildlife from noise-related effects would be minimized through the implementation of avoidance and minimization CMAs under Alternative 2. The CMA AM-PW-13 would minimize noise generated from Covered Activities using standard practices while other CMAs that would avoid and setback Covered Activities from noise-sensitive wildlife including seasonal setbacks for nesting birds; setbacks from riparian and wetland habitat benefitting bids, amphibians, and small mammals; and avoidance of Mohave ground squirrel's during operations (AM-DFA-RIPWET-1, AM-DFA-RIPWET-5, and AM-DFA-ICS-36).

Predator Avoidance Behavior

The effects of predator avoidance behavior are described in detail in Section IV.7.2.1 and can occur for some wildlife in response to human activities during siting, construction, and operations. These adverse effects resulting from predator avoidance behavior would generally be similar across renewable energy technology types. Therefore, the severity and location of the effects resulting from predator avoidance behavior would correspond to the amount and distribution of Covered Activities represented by the DFAs on BLM Land, as previously described.

Different wildlife species may have varying sensitivities to predator avoidance behavior and may experiences different magnitudes of responses to Covered Activities. However, Covered Activities are expected to generally result in predator avoidance and other behavioral changes in most wildlife species that are spread throughout BLM Land. Therefore, the most disturbance of wildlife from predator avoidance behavior would occur in the Cadiz Valley and Chocolate Mountains as well as the Imperial Borrego Valley subareas, where most of the terrestrial operational impacts on BLM Land are anticipated.

Under Alternative 2, avoidance and minimization CMAs for siting Covered Activities away from sensitive wildlife habitat would be implemented for riparian and wetland habitat, wildlife species that inhabit agricultural lands, and for particular species such as the Mohave ground squirrel (AM-DFA-RIPWET-1, AM-DFA-RIPWET-5, AM-DFA-AG-2, and AM-DFA-ICS-36). Additional CMAs would inform workers of actions that could potentially affect wildlife behavior and restrict activities that could disturb wildlife and their access to water and foraging habitat (AM-PW-5, AM-PW-13 and AM-RES-RL-DUNE-2). Further seasonal restrictions would also be implemented for recreational activities that might affect Bighorn sheep in the reserve design envelope (AM-RES-BLM-ICS-11). The potential disturbance of wildlife from predator avoidance behavior caused by siting, construction, and operational Covered Activities would be minimized by these measures, which are applicable on BLM Land.

Light and Glare

Exposure of wildlife to light and glare can alter wildlife behavior including foraging, migration, and breeding. Solar projects would produce increased levels of glare due to the large amount of reflective panel or heliostat surfaces and would have greater effects on wildlife than other renewable energy technologies. Potential adverse effects associated with light and glare from solar projects, including solar flux and bird collisions from the lake effect are analyzed in BR-9. As described above, most of the terrestrial operational impacts on BLM Land resulting from development of all technology types of renewable energy would occur in the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas. Similarly, impacts from solar projects on BLM Land would primarily occur in the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas.

Bats and other diurnal predators may exploit night lighting that increases prey detectability, but would also be attracted to areas of greater development that increase potential hazards such as collision. Impacts to habitat for bats would as a result of Covered Activities on BLM Land would mainly be located in the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas. Migratory birds that fly during the night may be affected by aviation safety lighting. For bird Covered Species the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley are the subareas primarily affected, containing most of the impacts to bird Covered Species habitat on BLM Land. Therefore, considering the distribution solar and other renewable energy technologies and impacts on modeled habitat for species sensitive light and glare the greatest wildlife disturbance is anticipated to occur in the Imperial Borrego Valley subarea and to a lesser extent in the West Mojave and Eastern Slopes as well as the Cadiz Valley and Chocolate Mountains subareas.

Alternative 2 would implement avoidance and minimization CMAs on BLM Land specifically intended to reduce effects of lighting and glare including AM-PW-14, which would implement standard practices for shielding and reducing the use of lights, as well as AM-DFA-RIPWET-4, which specifically restricts lighting within one mile of riparian or wetland vegetation. Other CMAs applicable to BLM Land would implement setbacks for riparian and wetland habitat, wildlife species that inhabit agricultural lands, and for smaller mammals, which would minimize their exposure to light and glare from Covered Activities (AM-DFA-RIPWET-1, AM-DFA-RIPWET-5, and AM-DFA-AG-2).

Non-Covered Species

Potential impacts to Non-Covered Species on BLM Land were analyzed as described in Section IV.7.3.2.1. Table IV.7-173 provides an estimation of the impacts to natural communities associated with Non-Covered Species. While estimation of impacts to natural

communities likely overestimates the potential impacts to Non-Covered Species habitats, it provides a general range of level of impact.

Impacts to the dune community, riparian communities, arid west freshwater emergent marsh, and Californian warm temperate marsh/seep would be avoided through implementation of CMAs, so impacts to potential habitat for each of these species is likely greater than would actually occur. For some species, impacts would be minimized through avoidance of the specific natural communities required for those species, e.g. dune- or cave-restricted invertebrates, or riparian-obligate bird species. The total impact to potential habitat across all technology types is less than 1%, with the exception of the grassland community at approximately 1.7% and within the agriculture/rural land cover areas at approximately 6.7%.

As additional analysis, Table IV.7-50 provides a cross-reference of natural communities shared between primary Covered and Non-Covered Species. There are a number of species-specific CMA's for Covered Species and natural communities that would be expected to also minimize and avoid impacts to the Non-Covered Species that may co-occur, e.g., the Non-Covered yellow-breasted chat often occurs within the same riparian habitat as the covered southwestern willow flycatcher, therefore, conservation measures implemented for southwestern willow flycatcher would often benefit the yellow-breasted chat. Although the modeled habitat for the Covered Species does not always directly overlap the range of Non-Covered Species requiring similar habitat, this method provides a general additional guide for determining impacts and accounting for conservation measures.

Under the Alternative 2, impacts to approximately 20 acres of Lane Mountain milk-vetch critical habitat on BLM lands would have the potential to occur from transmission. This calculation of impacts from transmission is derived from the transmission corridors overlapped with designated critical habitat, thus resulting is an overestimation of actual ground disturbance.

The results of impacts on Non-Covered Species from the creation of noise, predator avoidance behavior, and light and glare would be similar to those described for the Covered Species.

Table IV.7-173
BLM LUPA Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 2

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
California forest and woodland/ Desert conifer woodlands	Coast horned lizard, grey vireo, loggerhead shrike, yellow warbler, American badger, bighorn sheep, fringed myotis, hoary bat, long-eared myotis, pocketed free-tailed bat, spotted bat, Tehachapi pocket mouse, western mastiff bat, western small-footed myotis, Amargosa beardtongue, Charlotte's phacelia, creamy blazing star, Cushenbury buckwheat, Cushenbury milk-vetch, Cushenbury oxytheca, Kern buckwheat, Piute Mountains jewel-flower, purple-nerve cymopterus, San Bernardino Mountains dudleya, short-joint beavertail cactus, Spanish needle onion, Tracy's eriastrum, Cushenbury buckwheat	95,000	200	200	0	100	500	0.5%
Desert Scrub/ Chaparral Communities	Arroyo toad, banded gila monster, Coast horned lizard, Colorado Desert fringe-toed lizard, Couch's spadefoot, rosy boa, bald eagle, bank swallow, Crissal thrasher, Ferruginous hawk, gilded flicker, grey vireo, Le Conte's thrasher, loggerhead shrike, long-eared owl, Lucy's warbler, northern harrier, yellow warbler, American badger, Arizona myotis, big free-	7,023,000	31,000	6,000	6,000	10,000	53,000	0.7%

Table IV.7-173
BLM LUPA Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 2

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	tailed bat, bighorn sheep, cave myotis, fringed myotis, hoary bat, long-eared myotis, Palm Springs pocket mouse, pocketed free-tailed bat, spotted bat, Tehachapi pocket mouse, western mastiff bat, western small-footed myotis, western yellow bat, yellow-eared pocket mouse, Yuma myotis, Algodones Dunes sunflower, Ash Meadows gum plant, Amargosa beardtongue, bare- stem larkspur, Charlotte's phacelia, Cima milk-vetch, Coachella Valley milk-vetch, creamy blazing star, Cushenbury buckwheat, Cushenbury milk-vetch, Cushenbury oxytheca, desert pincushion, Emory's crucifixion-thorn, flat-seeded spurge, forked buckwheat, Harwood's eriastrum, Harwood's milkvetch, Inyo County star-tulip, Kelso Creek monkeyflower, Kern buckwheat, Las Animas colubrina, Lane Mountain Milk-Vetch, Mojave Desert plum, Mojave milkweed, Munz's Cholla, nine-awned							

Table IV.7-173
BLM LUPA Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 2

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	pappus grass, Orcutt's woody aster, Orocopia sage, Parish's club cholla, Pierson's milk-vetch, pink fairy-duster, Piute Mountains jewel-flower, purple-nerve cymopterus, Red Rock poppy, Red Rock tarplant, Robinson's monardella, Rusby's desert-mallow, sand food, Sodaville milk-vetch, short-joint beavertail cactus, Spanish needle onion, Thorne's buckwheat, Tracy's eriastrum, Utah beardtongue, white bear poppy, White-margined beardstongue, Wiggin's croton, Flat-seeded spurge, Parish's phacelia, Parish's alkali grass							
Dunes[3]/ Desert Outcrop and Badlands	Banded gila monster, barefoot gecko, Coast horned lizard, Colorado Desert fringe-toed lizard, Couch's spadefoot, rosy boa, bald eagle, bank swallow, Le Conte's thrasher, loggerhead shrike, long-eared owl, northern harrier, Amargosa vole, big free-tailed bat, bighorn sheep, cave myotis, bat, spotted bat, western mastiff bat,	1,330,000	4,000	1,000	400	2,000	7,400	0.6%

Table IV.7-173
BLM LUPA Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 2

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	Yuma myotis, Algodones Dunes sunflower, Ash Meadows gum plant, Amargosa beardtongue, Amargosa niterwort, Charlotte's phacelia, Cima milk-vetch, Coachella Valley milk-vetch, creamy blazing star, desert pincushion, Emory's crucifixion-thorn, flat-seeded spurge, forked buckwheat, Harwood's eriastrum, Harwood's milkvetch, Inyo County star-tulip, Las Animas colubrina, Mojave Desert plum, Mojave milkweed, nine-awned pappus grass, Orcutt's woody aster, Orocopia sage, Palmer's jackass clover, Parish's club cholla, Pierson's milk-vetch, pink fairy-duster, purple-nerve cymopterus, Red Rock poppy, Red Rock tarplant, Robinson's monardella, Rusby's desert-mallow, sand food, Spanish needle onion, Thorne's buckwheat, Utah beardtongue, white bear poppy, Wiggin's croton, Palmer's jackass clover, white-margined beardtongue, flat-seeded spurge							

Table IV.7-173
BLM LUPA Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 2

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
Grassland	Coast horned lizard, American peregrine falcon, bank swallow, Ferruginous hawk, long-eared owl, northern harrier, white-tailed kite, Amargosa vole, American badger, spotted bat, Cushenbury milk-vetch, Cushenbury oxytheca, short-joint beavertail cactus	29,000	200	100	0	200	500	1.7%
Riparian/ Wetlands	Arroyo toad, California red-legged frog, Coast horned lizard, Couch's spadefoot, Western pond turtle, American peregrine falcon, Arizona Bell's vireo, bald eagle, bank swallow, Crissal thrasher, gilded flicker, elf owl, Inyo California towhee, loggerhead shrike, long-eared owl, Lucy's warbler, northern harrier, redhead, vermillion flycatcher, white-tailed kite, yellow-breasted chat, yellow-headed blackbird, yellow warbler, Amargosa vole, Mojave River vole, Arizona myotis, cave myotis, fringed myotis, hoary bat, long-eared myotispocketed free-tailed bat, spotted bat, western mastiff bat, western yellow bat, Yuma myotis,	1,443,000	3,000	300	0	200	3,500	0.2%

Table IV.7-173
BLM LUPA Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 2

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	Ash Meadows gum plant, Inyo County star-tulip, Parish's alkali grass, Parish's phacelia, Amargosa pupfish, Amargosa speckled dace, Amargosa spring snails							
Agriculture/ Rural Land Cover	American peregrine falcon, Bank swallow, loggerhead shrike, long-eared owl, northern harrier, redhead, yellow-headed blackbird, yellow warbler, Arizona myotis, hoary bat, Tehachapi pocket mouse, western mastiff bat, western yellow bat	9,000	200	0	300	100	600	6.7%

1 Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

2 Solar impacts include ground-mounted distributed generation.

3 Impacts to the dune community, riparian communities, arid west freshwater emergent marsh, and Californian warm temperate marsh/seep would be avoided through implementation of CMAs. Only impacts determined to be unavoidable would occur in these natural communities.

4 This amount assumes the loss of conservation value for all land fragmented by the well fields.

Notes: The natural community classification system is described in Chapter III.7 and follows CDFG 2012. Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Impact BR-5: Siting, construction, decommissioning, and operational activities could result in loss of nesting birds (violation of the federal Migratory Bird Treaty Act and California Fish and Game Code Sections 3503, 3503.5, 3511, and 3513).

Siting, construction, decommissioning, and operations of renewable energy and transmission projects would result in the removal of vegetation and other nesting habitat and cause increased human presence and noise that has the potential to cause the loss of nesting birds, which would be a violation of the federal Migratory Bird Treaty Act. The potential loss of nesting birds resulting from these activities would be adverse without application of CMAs. Avoidance and minimization CMAs (AM-PW-4, 13, 14; AM-DFA-RIPWET-1, 3, 5; AM-DFA-AG-1 through 6; AM-DFA-ICS CMAs for bird species) include the season restrictions, survey requirements, and setbacks necessary to avoid and minimize the loss of nesting birds.

Impact BR-6: Siting, construction, decommissioning, and operational activities would adversely affect habitat linkages and wildlife movement corridors, the movement of fish, and native wildlife nursery sites.

Species-specific habitat linkages and wildlife movement areas are a component of analysis conducted under Impact BR-4 above. Suitable habitat for each species includes areas of habitat linkages and wildlife movement. Analysis under BR-4 specifically incorporates habitat linkage information for desert tortoise, Mohave ground squirrel, and desert bighorn sheep. In addition to the species-specific analysis of impacts to suitable habitat supporting habitat linkages and wildlife movement for species, landscape level information on habitat linkages (i.e., Desert Linkage Network) and migratory bird movement are analyzed below.

Desert Linkage Network

Table IV.7-174 shows the impact analysis for the desert linkage network for Alternative 2 for the BLM LUPA. Overall, over 24,000 acres of desert linkage network could be adversely impacted in DFAs and transmission corridors in nine different subareas.

In the Cadiz Valley and Chocolate Mountains subarea, DFAs are located in the portion of the desert linkage network that connects the Colorado River to the northern part of the McCoy Mountains. There are also DFAs in the linkage network that extends along the McCoy Mountains and connects south to the Palo Verde Mesa. There are also DFAs in the Palen Valley portion of a linkage network that extends south to the northern foothills of the Chocolate Mountains. There are also small DFAs in the linkage along the Colorado River around Vinagre Wash. As described in the Plan-wide analysis under Impact BR-6, Numerous generally north-south habitat linkages cross the I-10 corridor area between Desert Center and Blythe in this subarea. DFAs under Alternative 2 overlap these habitat linkages and would have the potential to result in adverse impacts to general terrestrial

wildlife movement. The existing I-10 corridor in a substantial barrier to movement for many species and the development of renewable energy both north and south of the I-10 corridor would further reduce the numbers and size of wildlife crossing location, which has the potential to further fragment habitat, reduce gene flow, and isolate populations. Under Alternative 2, the CMAs would not require avoidance and minimization of impacts to habitat linkages or maintenance of linkage function (AM-LL-1 (Alternative 2)).

In the Imperial Borrego Valley, there are DFAs in the northern portion of the desert linkage network that extends along East Mesa from east of the Imperial Valley north toward the Coachella Canal. There are also DFAs in the area that connects the southern end of the Chocolate Mountains. General terrestrial wildlife movement may be affected locally by the development of Covered Activities in these DFAs; however, the siting of DFAs, the reserve design, and the CMAs related to wildlife movement and Covered Species would offset the impacts on general terrestrial wildlife movement.

In the Mojave and Silurian Valley and Kingston and Funeral Mountains subareas, there is a DFA in the linkage network that connects the Silurian Valley to the Turquoise Mountain area. As described in the Plan-wide analysis under Impact BR-6, general terrestrial wildlife movement may be affected locally by the development of Covered Activities in these DFAs, which has the potential to fragment habitat, reduce gene flow, and isolate populations. Under Alternative 2, the CMAs would not require avoidance and minimization of impacts to habitat linkages or maintenance of linkage function (AM-LL-1 (Alternative 2)).

In the Owens River Valley, there are DFAs in the desert linkage network that connects the Haiwee Reservoir to Indian Wells. There is a DFA in the Searles Valley that would impact the linkage between the Searles Range and Argus Range in the Panamint Death Valley subarea. As described in the Plan-wide analysis under Impact BR-6, DFAs are not located in the desert linkage network corridors elsewhere in these ecoregion subareas. General terrestrial wildlife movement may be affected locally by the development of Covered Activities in these DFAs, which has the potential to fragment habitat, reduce gene flow, and isolate populations. Under Alternative 2, the CMAs would not require avoidance and minimization of impacts to habitat linkages or maintenance of linkage function (AM-LL-1 (Alternative 2)).

In the Pinto Lucerne Valley and Eastern Slopes subarea, there are DFAs in the desert linkage network that connects the Grapevine Canyon Recreation Lands to the Granite Mountains and the Ord Mountains then east to the Bodman Mountains. A DFA occurs in the connection between the Mojave River and Quartzite Mountain. There are also DFAs in the linkage that connects the Little Morongo Canyon to the area around Emerson Lake and in the linkage that connects the San Bernardino Mountains to the Fry Mountains. As described in the Plan-wide analysis under Impact BR-6, Development in these linkage areas would limit or degrade the ability of species, including bighorn sheep and other terrestrial

mammals, to move from the surrounding mountains to the desert floor and other adjoining mountains. DFAs under Alternative 2 overlap these habitat linkages and would have the potential to result in adverse impacts to terrestrial wildlife movement, which has the potential to further fragment habitat, reduce gene flow, and isolate populations. Under Alternative 2, the CMAs would not require avoidance and minimization of impacts to habitat linkages or maintenance of linkage function (AM-LL-1 (Alternative 2)).

In the Providence and Bullion Mountains there is are DFAs in the area northeast of the Twentynine Palms Marine Corps Base. DFAs are not located in the desert linkage network corridors elsewhere in this subarea. General terrestrial wildlife movement may be affected locally by the development of Covered Activities in these DFAs; however, the siting of DFAs, the reserve design, and the CMAs related to wildlife movement and Covered Species would offset the impacts on general terrestrial wildlife movement.

In the West Mojave and Eastern Slopes subarea, there are small DFAs in the linkage that connects the area around Baldy Mesa along the southern edge of the Plan Area to Helendale. DFAs also occur in the Brisbane Valley. Farther west in the Plan Area, there are small DFAs in the linkages that connect Fremont Valley and Soledad Mountain to the Tehachapi Mountains. There are also DFAs in the linkages in the Indian Wells Valley area, which could adversely impact movement for Mohave ground squirrel between its most northern population and the rest of its range. DFAs under Alternative 2 overlap these habitat linkages and would have the potential to result in adverse impacts to general terrestrial wildlife movement which has the potential to further fragment habitat, reduce gene flow, and isolate populations. Under Alternative 2, the CMAs would not require avoidance and minimization of impacts to habitat linkages or maintenance of linkage function (AM-LL-1 (Alternative 2)).

Although the reserve design envelope for Alternative 2 was developed, in part, to conserve and avoid impacts to habitat linkages and wildlife movement, including the desert linkage network, the DFAs under Alternative 2 are proposed in geographic locations important for the movement of wildlife and in locations that, if developed, could not be replaced or compensated. Additionally, the CMAs under Alternative 2 would not require avoidance and minimization of impacts to habitat linkages or maintenance of linkage function (AM-LL-1 (Alternative 2)). The potential for dispersed development across the Plan Area under Alternative would reduce the probability of maintaining a connected, unfragmented landscape, and it is anticipated that populations would become isolated and that more human intervention and management would be needed (i.e. assisted migration, population augmentation) to maintain populations.

Table IV.7-174
BLM LUPA Impact Analysis for the Desert Linkage Network – Alternative 2

Desert Linkage Network by Ecoregion Subarea	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Cadiz Valley and Chocolate Mountains	709,000	4,000	1,000	-	3,000	9,000
Imperial Borrego Valley	146,000	3,000	1,000	700	10	4,000
Kingston and Funeral Mountains	138,000	200	50	-	300	600
Mojave and Silurian Valley	368,000	700	200	-	300	1,000
Owens River Valley	15,000	80	-	200	100	400
Panamint Death Valley	112,000	70	10	-	10	90
Pinto Lucerne Valley and Eastern Slopes	168,000	600	500	-	900	2,000
Piute Valley and Sacramento Mountains	111,000	-	-	-	-	-
Providence and Bullion Mountains	377,000	600	400	-	100	1,000
West Mojave and Eastern Slopes	386,000	6,000	20	-	80	7,000
Total	**2,530,000**	**4,000**	**200**	**300**	**5,000**	**9,000**

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
[2] Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Migratory Birds

Migration patterns and the potential impacts of different technologies are discussed, in the typical impacts section (Section IV.7.2.1.3), with direct habitat loss quantified in BR-4, and operational impacts quantified in BR-9. The following analysis focuses on the anticipated distribution of different technology types in relation to known migratory corridors, and bird migration areas in each subarea.

In Alternative 2 wind generation is a significant proportion of the overall generation mix, BLM managed DFAs especially in the Pinto Lucerne Valley and Eastern Slopes Subarea.

Smaller quantities of develop in the West Mojave and Eastern Slopes, and Mojave and Silurian Valley Subareas. Wind development would affect migratory routes between the Tehachapi and San Bernardino passes, and the dry lakes and wetland refuges on the Edwards AFB, and in the North Mojave including China Lake, Koehn Lake, Harper Lake and Searles Lake. In particular, DFAs near Koehn Lake would be a particular issue because they lie between the Tehachapi Mountains and the Lake. Wind development would also occur in the Cadiz and Chocolate Mountains subarea to the north west of Blythe in the McCoy wash area, and north of the I-10. These areas are near to the Colorado River migratory corridor, and may affect migratory bird movement to and from the Coachella Valley. The smaller quantities of wind development anticipated in the Imperial Borrego Valley subarea would occur in to the southeast of the Chocolate Mountains.

Solar development would be constructed throughout the West Mojave and Eastern slopes, Pinto Lucerne Valley, Cadiz and Chocolate Mountain and Imperial Borrego Valley subareas. Alternative 2 would result in new solar PV and solar thermal generation facilities in the BLM SEZ along the I-10 corridor to the west side of the Colorado River and in McCoy Valley. This may give the appearance of a string of lakes on known migratory linkages for birds between the Colorado River and Coachella Valley. As discussed above, development in the West Mojave and Eastern slopes, Pinto Lucerne Valley would occur in DFAs between the Tehachapi and San Bernardino Mountain passes, and dry lakes on Edwards AFB, as well as, the North Mojave dry lakes of China Lake, Koehn Lake, Harper Lake and Searles Lake.

Development around the Salton Sea and in the Imperial Valley would be on the southern, western and eastern shores. Impacts from solar development described in BR-4, are likely to result development of solar facilities on BLM lands where previously this has not occurred. Development would create facilities across the landscape that mimic open water. Such facilities would adversely affect the behavior migratory birds, and would result increased mortality.

Application of CMAs would require projects to be sited and designed to avoid impacts to occupied habitat and suitable habitat for Covered Species to the maximum extent feasible. A bird and bat use and mortality monitoring program would be implemented during operations Further, proposed projects that are likely to impact bird and bat Covered Species during operation would develop and implement a project-specific Bird and Bat Covered Species Operational Actions that meets the approval of the appropriate DRECP Coordination Group. The goal of the project-specific Bird and Bat Covered Species Operational Actions would be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind solar and geothermal projects. CMAs would negate direct loss of riparian and wetlands habitats, result in no directly loss of riparian and wetland a habitats. Further, implementation of species specific CMAs would ensure impacts to bird species would be reduced and compensation CMAs would offset habitat loss for these

species. The compensation requirements in the Bird and Bat Covered Species Operational Actions would be based on ongoing/annual fees and the biological basis for the fee would be determined by the mortality effects as annually measured and monitored according to the Bird and Bat Covered Species Operational Actions. Application of CMAs would reduce the overall impacts to migratory bird populations.

Although these CMAs would be in place under Alternative 2, the DFAs are sited in locations that would result in impacts to migratory birds in locations that cannot be avoided, minimized, and compensated given the potential for fragmentation, isolation, and disruption of migratory patterns that would result from this alternative.

Impact BR-7: Siting, construction, decommissioning, and operational activities would result in habitat fragmentation and isolation of populations of listed and sensitive plants and wildlife.

As discussed in the Plan-wide analysis, the construction and operation of renewable energy and transmission projects can have the potential to fragment intact and interconnected landscapes resulting in isolated patches of habitat, isolated species populations, reduced gene flow, and remaining habitat that is more exposed to the edge effects of adjacent developments. The DRECP integrated planning process, as described in Volume II, avoids and minimizes this impact through the siting of DFAs and through the reserve design. In order to minimize habitat fragmentation and population isolation, DFAs were sited in less intact and more degraded areas. Other measures of fragmentation and population isolation effects include the amount of impacts on environmental gradients such as elevation, landforms, slope, and aspect. The impacts to these four environmental gradients under Alternative 2 within DFAs on BLM Land would follow the same overall pattern as Plan-wide impacts (AM-LL-1(Alternative 2) through AM-LL-4).

In order to minimize habitat fragmentation and population isolation, most DFAs under Alternative 2 were sited in less intact and more degraded areas; however, some DFAs under Alternative 2 do not avoid sensitive resource or intact landscapes because these areas were identified through public scope as priority for the development of renewable energy. Although many of the DFAs are in locations with existing habitat fragmentation and population isolation such that development of Covered Activities in these areas would not appreciably contribute to additional effects, some of the DFAs in this alternative are in direct conflict with landscape intactness, critical populations, and/or key connectivity corridors. See Impact BR-6 for an analysis of the effects of this alternative on wildlife movement.

Impact BR-8: Construction of generation facilities or transmission lines would result in increased predation of listed and sensitive wildlife species.

As discussed in the Plan-wide analysis, Covered Activities in undisturbed desert habitat are likely to supplement predators, and increase predation rates on Covered Species. The LUPA Alternative 2 would result approximately 66,000 acres of permanent conversion of natural desert communities with 1,400 acres of impacts to already disturbed communities. 31% of impacts would occur in the Cadiz and Chocolate Mountains, 19% would occur in Imperial Borrego Valley, 20% in West Mojave and Eastern Slopes, 6% at Pinto Lucerne Valley, and the remaining 12 % spread across the rest of the plan area.

The development in the Cadiz and Chocolate Mountains subarea would be expected in the solar PEIS SEZ adjacent to the I-10 corridor, and in the McCoy Wash. Impacts are likely to increase predation on susceptible species including desert tortoise, Mojave fringe-toed lizard, and nesting bird species.

Development in the West Mojave and Eastern Slopes subareas may supplement predators in undisturbed environments including parts of the Tehachapi Mountains and DFAs to the north of Edwards AFB. In these areas, susceptible species would include nestlings and eggs of Covered Species like tricolored blackbird and golden eagle, as well as small reptiles like the Tehachapi slender salamander, and mammals like the Mohave ground squirrel.

Covered Activities associated with solar and wind generation in the Pinto and Lucerne Valley subarea would affect areas throughout the Lucerne Valley. Species impacted would include golden eagle, and other nesting birds as well as small mammals and reptiles.

Impacts from solar and geothermal development area anticipated in Imperial Borrego Valley. Impacts would occur in three BLM managed areas: the western foothills of the Chocolate Mountains that include geothermal leasing areas studied in the 2008 west-wide geothermal PEIS; BLM land along the western edge of East Mesa ACEC; and in BLM managed lands on the west side of the Salton Sea that include the Truckhaven geothermal leasing area. Increased predation on flat-tailed horned lizard, desert tortoise, and nesting birds could be expected.

Application of a Common Raven management plan (AM-PW-6), approved by the appropriate DRECP Coordination Group would reduce project activities that increase predator subsidization. Activities include: removal of trash and organic waste; minimize introduction of new water sources including pooling of water from dust control; removal of carcasses from bird and bat collisions; and reduction in new nesting and perching sites where feasible.

The level of impact on Non-Covered Species would be similar to that discussed for the Covered Species.

Impact BR-9: Operational activities would result in avian and bat injury and mortality from collisions, thermal flux or electrocution at generation and transmission facilities.

The impacts of operation activities on avian and bat injury and mortality are analyzed below for wind turbines, solar, and transmission.

Wind Turbine

This section summarizes wind turbine operational impacts to bird and bat species within BLM managed DFAs. The range of collision rates calculated in Table IV.7-175 are indicative of the overall annual collision rates for all bird and bat species, not just Covered Species. The range of collision rates is estimated for the final full build-out of wind over the life of the Plan, and is based on the range of collision rates in existing published and gray literature. While it is possible to provide a range of possible collision rates, it is not feasible to estimate the collision rate for each Covered Species, but only infer the propensity for a species to be at risk of collision from its expected distribution and life history of the birds in the Plan Area.

Overall, the Alternative 2 would result in a median of 4,000 collisions per year for birds and 19,000 collisions for bats across the Plan Area. The expected distribution of wind generation indicates that 48% of all collisions in DFAs on BLM lands would occur in the Cadiz Valley and Chocolate Mountains subarea, 21% of collision, would occur in the Pinto Lucerne Valley and Eastern Slopes subarea, and 10% of collisions would occur in the Mojave, and Silurian Valley subarea, with the remaining 20% spread between across other subareas

The high rates of collision effects in the Cadiz Valley and Chocolate Mountains region would result in greater impacts for western yellow-billed cuckoo, Yuma clapper rail, mountain plover, southwest willow flycatcher, and burrowing owl. Whereas, development in the Pinto and Lucerne Valley subarea would mainly affect golden eagle territories and important Bendire's thrasher habitat. In the Mojave and Silurian Valley, burrowing owl, tricolored blackbird and golden eagles would be at risk.

Pre-construction CMAs require habitat assessments and pre-construction surveys for covered riparian and wetland bird, burrowing owl, greater sandhill crane, Swainson's hawk, Bendire's thrasher, golden eagle.

Application of siting CMAs would avoid or minimize the risk to species localities. Setbacks from active nests would be required for Bendire's thrasher, California condor, Gila woodpecker, and golden eagle. In addition, projects would be sited and designed to avoid

impacts to occupied habitat, and suitable habitat for Covered Species to the maximum extent feasible. Implementation of bat specific CMAs include 0.5-mile setbacks from all bat maternity roosts and 5% disturbance caps on desert scrub and woodland habitats in the vicinity of occupied pallid bat and Townsend's big-eared bat roosts would reduce impacts to covered bat species. Although these CMAs would be in place under Alternative 2, some of the DFAs under this alternative are sited in remote geographic locations in intact landscapes where impacts to Covered Species have a higher potential to occur.

Applicants would develop and implement a project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meets the approval of the appropriate DRECP Coordination Group. The goal of the project-specific BBOS will be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar, geothermal, or transmission project. A bird and bat use and mortality monitoring program will be implemented during operations using current protocols and best procedures available at time of monitoring. Further, the compensation requirements in the BBOS would be based on ongoing/annual fees and the biological basis for the fee will be determined by the mortality effects as annually measured and monitored according to the BBOS.

Similarly, a Condor Operations Strategy (COS) would be developed on a project-specific basis with the goal of avoiding mortality from operations of wind, solar and geothermal projects. No take for condors will be will be permitted in the form of kill from project operations. Any actions taken to encourage condors to leave an area that might result in harassment, injury, or mortality to the bird will be conducted by a Designated Biologist.

Table IV.7-175
BLM LUPA Estimated Range of Bird and Bat Collisions per Year by Subarea – Alternative 2

Ecoregion Subarea	# Turbines	Birds (Collisions/Yr)			Bats (Collisions/Yr)		
		Low	*Median*	*High*	*Low*	*Median*	*High*
Cadiz Valley and Chocolate Mountains	694	1,000	4,000	13,000	1,000	16,000	97,000
Imperial Borrego Valley	58	100	300	1,000	100	1,000	8,000
Kingston and Funeral Mountains	57	100	300	1,000	100	1,000	8,000
Mojave and Silurian Valley	139	200	700	3,000	300	3,000	20,000
Owens River Valley	0	-	-	-	-	-	-
Panamint Death Valley	12	-	100	200	-	300	2,000
Pinto Lucerne Valley and Eastern Slopes	306	500	2,000	6,000	600	7,000	43,000

Table IV.7-175
BLM LUPA Estimated Range of Bird and Bat Collisions per Year by Subarea – Alternative 2

Ecoregion Subarea	# Turbines	Birds (Collisions/Yr)			Bats (Collisions/Yr)		
		Low	*Median*	*High*	*Low*	*Median*	*High*
Piute Valley and Sacramento Mountains	0	-	-	-	-	-	-
Providence and Bullion Mountains	133	200	700	3,000	300	3,000	19,000
West Mojave and Eastern Slopes	62	100	300	1,000	100	1,000	9,000
Grand Total	1,462	2,000	7,000	28,000	3,000	34,000	205,000

[1] Method for estimation of annual bird and bat collision rates described in Section IV.7.1.1.2 and discussed in more detail in Section IV.7.2.1.3

Note: The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table

Solar

Under the Alternative 2 impacts to avian and bat species from solar development based on the planned solar capacity. Nonfederal DFAs would see a 4-fold increase in collision risks relative to baseline. 28% of the collision risks would occur in the Cadiz and Chocolate Mountains, with, 22% in Imperial Borrego Valley, 32% in West Mojave and Eastern Slopes, 6% in Pinto Lucerne Valley and Eastern Slopes subarea, and the remaining 12 % spread across the rest of the plan area.

The development in the Cadiz and Chocolate Mountains subarea would occur in the solar PEIS SEZ adjacent to the I-10 corridor, and in the McCoy Wash. Species impacted by Covered Activity include: Bendire's thrasher, burrowing owl, Gila woodpecker, golden eagle, greater sandhill crane, and mountain plover. Anticipated impacts in Imperial Borrego Valley would occur in three BLM managed areas: the western foothills of the Chocolate Mountains; land along the western edge of East Mesa ACEC; and in BLM managed lands on the west side of the Salton Sea species. Birds and bats at risk from solar impacts include Bendire's thrasher, burrowing owl, California black rail, Gila woodpecker, golden eagle, greater sandhill crane, mountain plover, Swainson's hawk, and Yuma clapper rail, Bats at risk include pallid bat, California leaf-nosed bat, Townsend's big-eared bat. Development in the West Mojave and Eastern Slopes subareas would occur in the Tehachapi Mountains and areas to the north California City, and along HWY 395. In these areas, susceptible species would include California condor, tricolored blackbird, golden eagle, mountain plover, Bendire's thrasher, Burrowing owls and Swainson's hawk. Affected bat species that

include pallid bat, California leaf-nosed bat, Townsend's big-eared bat. Impacts from Covered Activities associated with solar generation in the Pinto and Lucerne Valley subarea would be spread throughout the Lucerne Valley. Species impacted would include golden eagle, Bendire's thrasher, and burrowing owl.

To offset potential impacts, the application of CMAs would require projects to be sited and designed to avoid impacts to occupied and suitable habitat for Covered Species, to the maximum extent feasible. Further, siting and construction CMAs require setbacks from riparian and wetland habitats which would minimize direct loss. Compensation CMAs would offset habitat loss for Covered Species. A bird and bat use and mortality monitoring program would be implemented during operations. Any proposed projects that are likely to impact bird and bat Covered Species during operation would develop and implement project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meet the approval of the appropriate DRECP Coordination Group. The goal of the project-specific Bird and Bat Covered Species Operational Actions would be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar and geothermal projects. The compensation requirements of AM-LL-4 would be based on ongoing/annual fees and the biological basis for the fee would be determined by the mortality effects as annually measured and monitored according to AM-LL-4. In combination, the application of siting, monitoring, operational and compensation CMAs would minimize impacts to resident and migratory birds. Bat mortality from solar facilities may occur because of collision or solar flux injury. No DFAs are known to be specifically sensitive areas for bat foraging, and implementation of bat specific CMAs include 500 feet setbacks from all bat maternity roosts and 5% disturbance caps on desert scrub and woodland habitats in the vicinity of occupied pallid bat and Townsend's big-eared bat roosts would reduce impacts to bat Covered Species. Further, the development of Bird and Bat Covered Species Operational Actions (AM-LL-4) as discussed above would greatly reduce the risk to bat populations. Consequently, application of CMAs would reduce the overall impacts to bat populations

Transmission

The transmission collision and electrocution impacts would occur from generation tie lines (collector lines), new substations, and major transmission lines (delivery lines) that deliver power to major load centers. The distribution of impacts from collector lines would mostly occur within DFAs and be similar in distribution to the generation facilities. Most of the affected areas would be in Cadiz and Chocolate Mountains, Imperial Borrego Valley, Mojave and Silurian Valley, and the Pinto Lucerne Valley, with 5,000 acres, 3,000 acres,1,000acres, and 2,000 acres of terrestrial impacts anticipated respectively. The remaining 3,000 acres of terrestrial impacts would be spread throughout the remaining subareas.

Both large transmission lines and the network of smaller gen-tie lines would present collision and electrocution hazard to covered bird species. In particular, lines running perpendicular to migratory corridors, and/or close to bird refuges would represent a greater hazard. Such lines would include those anticipated to run parallel to the Tehachapi Mountains and those that would cross the Tehachapi mountain passes, which would represent additional risk to migrating and overwintering Covered birds. Migrating birds would be particularly susceptible in bad weather when flocks birds may be forced down to lower altitudes. Golden eagle would be particularly susceptible to lines in both the Pinto Lucerne Valley and Eastern Slopes, and the Mojave and Silurian Valley subareas, as there are numerous territories in these areas. However, all covered bird species may be impacted by additional transmission infrastructure. To ameliorate potential hazards, transmission projects would reduce impacts to Covered Species by implementing Plan-wide, landscape-level, natural community, and Covered Species CMAs where feasible, as discussed under the wind impacts section.

Applicants would develop and implement a project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meets the approval of the appropriate DRECP Coordination Group. The goal of the project-specific BBOS will be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar, geothermal, or transmission project. A bird and bat use and mortality monitoring program will be implemented during operations using current protocols and best procedures available at time of monitoring. Further, the compensation requirements in the BBOS would be based on ongoing/annual fees and the mortality effects as annually measured and monitored according to the BBOS will determine the biological basis for the fee.

In addition, transmission projects would implement transmission specific CMAs that would: where feasible, bury electrical collector lines along roads (AM-TRANS-1); fit flight diverters on all transmission projects spanning or within 1,000 feet of water bodies and watercourses (AM-TRANS-2); avoid siting transmission projects that span canyons or are located on ridgelines (AM-TRANS-3); restrict transmission projects to within designated utility corridors (AM-TRANS-4). With the implementation of CMAs impacts to Covered Species would minimized.

The level of impact on Non-Covered Species would be similar to that discussed for the Covered Species.

Operational Impacts Take Estimates for Covered Avian and Bat Species

The following section summaries the initial estimates for take of Covered Species by operational activities that would require compensatory mitigation. Take estimates integrate all sources of mortality for each technology discussed above.

Table IV.7-176
BLM LUPA Estimated Total Take for
Covered Avian and Bat Species –Alternative 2

Covered Bird and Bat Species	Solar Impact	Wind Impact	Geothermal Impact	Total Impact
Bendire's thrasher	10	10	0	20
Burrowing owl	60	140	10	210
California condor[1]	0	0	0	0
California black rail	20	10	0	30
Gila woodpecker	20	20	0	40
Golden eagle[2]	n/a	n/a	n/a	n/a
Least Bell's vireo	20	10	0	30
Mountain plover	30	90	10	130
Greater sandhill crane	10	20	0	30
Southwestern willow flycatcher	30	20	0	50
Swainson's hawk	10	0	0	10
Tricolored blackbird	20	0	0	20
Western yellow billed cuckoo	20	20	0	40
Yuma clapper rail	20	10	0	30
Grand Total Avian Species	**270**	**350**	**20**	**640**
California leaf-nosed bat	10	60	0	70
Pallid bat	10	80	0	90
Townsend's big-eared bat	20	0	0	20
Grand Total Bat Species	**40**	**140**	**0**	**180**

1 Take for California condor would not be permitted under the DRECP.

2 Take of Golden Eagle would be permitted on a project by project basis. Based on the 2013 analysis, no more than 15 golden eagles per year would be authorized for 2014 for any new activity within the Plan Area. Take limits for the DRECP area will be re-evaluated annually based on the amount of ongoing take and population estimates of eagles within the local-area population of eagles.

Note: Totals may not sum due to rounding

IV.7.3.4.2.2 Impacts of Changes to BLM Land Designations

The BLM LUPA would establish conservation designations on BLM-administered lands under each alternative that would conserve biological resources, including NLCS, ACEC, and wildlife allocations. On BLM-administered lands under Alternative 2, the BLM LUPA would designate approximately 5,191,000 acres of BLM LUPA conservation designations, including 5,113,000 acres of NLCS, 77,000 acres of ACEC, and 700 acres of wildlife allocation. Additionally, existing conservation areas occur on BLM-administered lands that conserve biological resources. Appendix L provides unit-specific ACEC and NLCS worksheets that identify relevant resources, specific resources goals, objectives, and prescribed management actions. The following provides an analysis of the conservation

that would be provided in these BLM LUPA conservation designations, organized by landscape, natural communities, and species.

The BLM LUPA would also establish Special Recreation Management Areas (SRMAs) and would identify lands to be managed to protect Wilderness Characteristics. These BLM LUPA land designations are overlays that specify particular management and uses for specific areas. Unit-specific SRMA worksheets are provided in Appendix L and the CMAs specific to lands managed to protect Wilderness Characteristics are provided as part of the Volume II descriptions of the DRECP alternatives. These land designations may co-occur with the BLM LUPA conservation designations (NLCS, ACECs, and wildlife allocations). Where these land designations do no co-occur with the BLM LUPA conservation designations, they were not included as part of the reserve design envelope and were not included in the conservation analysis for biological resources provided in this section.

Landscape

Habitat Linkages

Table IV.7-177 shows the conservation of the desert linkage network under Alternative 2 for the BLM LUPA. Conservation of the desert linkage network totals more than 2.5 million acres (70%). The linkage in the northern portion of the Cadiz Valley and Chocolate Mountains subarea that extends from the Ward Valley to the Vidal Valley and south to the Big Maria Mountains and the Palen Mountains and the linkage from the Ward Valley to the Cadiz Valley are mostly conserved. With the exception of the linkage along the eastern boundary of the Plan Area and the Chuckwalla Valley, the majority of the remaining linkages are mostly conserved. In the Imperial Borrego Valley, the connection that extends into the Cadiz Valley and Chocolate Mountains subarea to the east and the linkage along East Mesa are only partly conserved. None of the linkages in the Kingston and Funeral Mountains subarea are entirely conserved. None of the linkages in the Mojave and Silurian Valley subarea are entirely conserved since the middle portion of the subarea is not in Reserve Lands; however the majority of the desert linkage network in the northwestern portion of the Plan Area are conserved. Portions of the single linkage in the Owens River Valley subarea are not conserved. The connectivity of the northernmost linkage in the Panamint Death Valley subarea is preserved only along the Searles Range. The connection in the China Lake Naval Weapon Center is not conserved in Reserve Lands, but most of the remainder of this linkage to the west is conserved. Most of the linkage in the eastern portion of the subarea is not in Reserve Lands under the BLM LUPA. In the Pinto Lucerne Valley and Eastern Slopes subarea, none of the linkages are completely conserved. The linkages along the eastern boundary of the Piute Valley and Sacramento Mountains subarea would not be in Reserve Lands, but most of the remaining linkages or portions of linkages are conserved. The linkages in the eastern portion of Providence and Bullion Mountains

subarea would be largely maintained in Reserve Lands, but the area northeast of the Twentynine Palms Corps Base is outside Reserve Lands, potentially breaking connections to the north and east. In addition, a portion along Fenner Valley is not in Reserve Lands, potentially breaking another connection there. In the West Mojave and Eastern Slopes subarea, the largest contiguous conservation of the desert linkage network is in the Tehachapi Mountains area.

In addition to conservation of the desert linkage network, CMAs provide for the avoidance and minimization of certain linkages in the DFAs (see Section IV.7.3.4.2.1).

Table IV.7-177
BLM LUPA Conservation Analysis for the Desert Linkage Network – Alternative 2

Desert Linkage Network by Subarea	Available Lands (acres)	Existing Conservation[1] (acres)	NLCS (acres)[2]	ACEC (acres)	Wildlife Allocation (acres)	Total Conservation (acres)	% of Available Lands
Cadiz Valley and Chocolate Mountains	890,000	187,000	434,000	47,000	-	680,000	76%
Imperial Borrego Valley	156,000	14,000	78,000	2,000	-	94,000	60%
Kingston and Funeral Mountains	174,000	28,000	117,000	6,000	-	155,000	89%
Mojave and Silurian Valley	507,000	179,000	198,000	17,000	-	400,000	79%
Owens River Valley	19,000	40	11,000	500	-	14,000	73%
Panamint Death Valley	206,000	109,000	71,000	6,000	-	186,000	90%
Pinto Lucerne Valley and Eastern Slopes	291,000	16,000	114,000	5,000	-	150,000	52%
Piute Valley and Sacramento Mountains	152,000	14,000	95,000	3,000	-	114,000	75%
Providence and Bullion Mountains	426,000	144,000	198,000	5,000	-	350,000	82%
West Mojave and Eastern Slopes	860,000	45,000	265,000	85,000	-	443,000	51%
Grand Total	**3,682,000**	**736,000**	**1,581,000**	**176,000**	-	**2,587,000**	**70%**

[1] Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on BLM-administered land

[2] Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), on BLM-administered land

Notes: Conservation acreages reported for Existing Conservation and BLM LUPA conservation designations reflect application of the conservation percentage assumptions as described in Section IV.7.1.1.2.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Overlaps of ACECs or Wildlife Allocations with NLCS designations are reported as NLCS designations. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Hydrological Resources

A conservation analysis for hydrological resources is provided below, including playa, seep/spring, and the four major rivers in the Plan Area (i.e., Amargosa, Colorado, Mojave and Owens) for Alternative 2 on BLM land. Conservation of riparian areas and wetlands, which co-occur with many of these hydrological resources is provided below under Natural Communities.

Playa

Playa totals approximately 163,000 acres in the Plan Area. Overall, 71% (approximately 116,000 acres) would be conserved under Alternative 2 on BLM land. Existing Conservation would account for 9% of the conservation, NLCSs would account for 90%, ACECs and wildlife allocations would each account for less than 1. Additionally, playas and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks. CMAs for playas would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided riparian or wetland natural communities.

Seep/Spring

There are 178 seep/spring locations in the Plan Area under Alternative 2 on BLM land. Overall, 83% (148 locations) of the seep/spring locations would be conserved under Alternative 2 on BLM land. The conservation of seep/spring under Alternative 2 on BLM land would be more than half in all subareas except for Imperial Borrego Valley (32%, 1 location). These include Cadiz Valley and Chocolate Mountains (100%, 5 locations), Kingston and Funeral Mountains (83%, 27 locations), Mojave and Silurian Valley (95%, 10 locations), Owens River Valley (57%, 6 locations), Panamint Death Valley (87%, 10 locations), Piute Valley and Sacramento Mountains (89%, 14 locations), Pinto Lucerne Valley and Eastern Slopes (74%, 29 locations), Providence and Bullion Mountains (90%, 17 locations), and West Mojave and Eastern Slopes (95%, 29 locations).

Overall, Existing Conservation would account for 36% of the conservation of seep/spring, NLCSs would account for 61%, and ACECs would account for 3%. Additionally, seeps and springs and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks. CMAs for seep/spring locations would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided wetland natural communities.

Major Rivers

Overall, 94% of the major rivers would be conserved under Alternative 2 on BLM land, including 95% of the Amargosa River and 93% of the Mojave River. Existing Conservation would account for 37%, NLCSs would account for 61%, and ACECs would account for 3%. Additionally, major rivers and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks.

Dune and Sand Resources

Overall, 82% (802,000 acres) of dunes and sand resources would be conserved under Alternative 2 on BLM land. At least 50% of dunes and sand resources would be conserved in all subareas that contain substantial acreage of dunes and sand in the Plan Area, including Cadiz Valley and Chocolate Mountains at 85% (444,000 acres), Imperial Borrego Valley at 65% (77,000 acres), Kingston and Funeral Mountains at 90% (40,000 acres), Mojave and Silurian Valley at 90% (38,000 acres), Owens River Valley at 87% (4,000 acres), Panamint and Death Valley at 54% (17,000 acres), Providence and Bullion Mountains at 88% (164,000 acres), West Mojave and Eastern Slopes at 89% (8,000 acres), and Pinto Lucerne Valley and Eastern Slopes at 66% (12,000 acres). Dunes and sand resources and associated Covered Species, natural communities and ecological functions would be avoided through application of the dune avoidance and minimization CMAs.

Environmental Gradients

The conservation analysis addresses four types of environmental gradients in the Plan Area: elevation, landforms, slope, and aspect. The conservation of these four environmental gradients under Alternative 2 within DFAs on BLM Land would follow the same overall pattern as Plan-wide conservation.

Natural Communities

Table IV.7-178 shows the conservation to natural communities with changes to BLM LUPA Designations on BLM Land. A conservation summary by general community is provided below in comparison to Plan-wide conservation discussed in Section IV.7.3.2.1.2. Appendix R2 provides a detailed analysis of natural community conservation by ecoregion subarea.

California forest and woodlands

Overall, approximately 39,000 acres (87%) of California forest and woodlands would be conserved under BLM LUPA under Alternative 2. The majority of conservation would occur in the Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas. Conservation would primarily come from BLM LUPA conservation

designations, which are mostly ACECs. In addition to conservation of California forest and woodlands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 15,000 acres (81%) of chaparral and coastal scrubs would be conserved under BLM LUPA under Alternative 2. The majority of conservation would occur in NLCSs. In addition to conservation of chaparral and coastal scrubs, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert conifer woodlands

Overall, approximately 43,000 acres (87%) of desert conifer woodlands would be conserved under BLM LUPA under Alternative 2. The majority of conservation would occur in the Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas. Conservation would primarily come from existing conservation. In addition to conservation of desert conifer woodlands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert outcrop and badlands

Overall, approximately 1,061,000 (88%) of desert outcrop and badlands would be conserved under BLM LUPA under Alternative 2. The majority of conservation would occur in the Cadiz Valley and Chocolate Mountains and Piute Valley and Sacramento Mountains subareas. Conservation would primarily come from existing conservation. In addition to conservation of desert outcrop and badlands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert scrubs

Overall, approximately 6,017,000 acres (86%) of desert scrubs would be conserved under BLM LUPA under Alternative 2. The majority of conservation within BLM LUPA would occur in the Cadiz Valley and Chocolate Mountains, Kingston and Funeral Mountains, and Providence and Bullion Mountains subareas. Conservation would primarily come from NLCSs. In addition to conservation of desert scrubs, the same CMAs

that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Dunes

Overall, approximately 101,000 acres (79%) of dunes would be conserved under BLM LUPA under Alternative 2. Most of the dunes within BLM LUPA would be conserved in Imperial Borrego Valley, Kingston and Funeral Mountains, and Cadiz Valley and Chocolate Mountains subareas. Conservation would primarily come from NLCSs. In addition, CMA application would require avoidance of all dunes and prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

Grasslands

Overall, approximately 22,000 acres (76%)of grasslands would be conserved under BLM LUPA under Alternative 2. The majority of conservation within BLM LUPA would occur in the Pinto Lucerne Valley and Eastern Slopes subarea. Over half of the conservation would be in NLCSs. In addition to conservation of grasslands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Riparian

Overall, approximately 512,000 acres (79%) of riparian communities would be conserved under BLM LUPA under Alternative 2. Most of the conservation within BLM LUPA would occur in the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas. Conservation would primarily come from NLCSs. In addition, CMA application would require avoidance of and setbacks from all riparian communities as well as to other CMAs that would benefit riparian communities beyond simply conservation.

Wetlands

Overall, approximately 217,000 acres (73%) of riparian communities would be conserved under BLM LUPA under Alternative 2. Most of the conservation within BLM LUPA would occur in the Cadiz Valley and Chocolate Mountains, Kingston and Funeral Mountains, and West Mojave and Eastern Slopes subareas. Conservation would primarily come from NLCSs. In addition, CMA application would require avoidance of and setbacks from Arid West freshwater emergent marsh and Californian warm temperate marsh/seep as well as other CMAs that would benefit riparian communities beyond simply conservation.

Table IV.7-178
BLM LUPA Conservation Analysis for Natural Communities – Alternative 2

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	NLCS (acres)[2]	ACEC (acres)	Wildlife Allocations (acres)	Total Conservation (acres)	% of Available Lands
California forest and woodland							
Californian broadleaf forest and woodland	11,000	600	1,000	8,000	50	10,000	94%
Californian montane conifer forest	34,000	18,000	7,000	4,000	0	29,000	84%
Chaparral and coastal scrub community (Cismontane scrub)							
Californian mesic chaparral	500	0	200	300	0	500	90%
Californian pre-montane chaparral	300	0	40	300	0	300	95%
Californian xeric chaparral	5,000	2,000	2,000	500	0	4,000	91%
Central and south coastal California seral scrub	20	0	20	0	0	20	95%
Central and South Coastal Californian coastal sage scrub	13,000	2,000	8,000	20	0	10,000	76%
Western Mojave and Western Sonoran Desert borderland chaparral	200	20	80	0	0	100	48%
Desert conifer woodlands							
Great Basin Pinyon - Juniper Woodland	50,000	27,000	16,000	1,000	0	43,000	87%
Desert outcrop and badlands							
North American warm desert bedrock cliff and outcrop	1,203,000	566,000	487,000	8,000	100	1,061,000	88%

Table IV.7-178
BLM LUPA Conservation Analysis for Natural Communities – Alternative 2

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	NLCS (acres)[2]	ACEC (acres)	Wildlife Allocations (acres)	Total Conservation (acres)	% of Available Lands
Desert Scrub							
Arizonan upland Sonoran desert scrub	3,000	1,000	1,389	0	-	2,744	91%
Intermontane deep or well-drained soil scrub	69,000	16,000	46,035	714	-	62,312	90%
Intermontane seral shrubland	5,000	10	4,036	0	-	4,048	74%
Inter-Mountain Dry Shrubland and Grassland	282,000	86,000	1,000	0	0	3,000	91%
Intermountain Mountain Big Sagebrush Shrubland and steppe	24,000	5,000	46,000	700	0	62,000	90%
Lower Bajada and Fan Mojavean - Sonoran desert scrub	6,114,000	2,003,000	4,000	0	0	4,000	73%
Mojave and Great Basin upper bajada and toeslope	406,000	165,000	121,000	2,000	0	209,000	74%
Shadscale - saltbush cool semi-desert scrub	101,000	17,000	10,000	4,000	0	19,000	78%
Southern Great Basin semi-desert grassland	50	0	3,236,000	31,000	400	5,270,000	86%
Dunes							
North American warm desert dunes and sand flats	127,000	34,000	66,000	1,000	0	101,000	79%
Grassland							
California Annual and Perennial Grassland	28,000	10,000	11,000	600	0	21,000	77%

Table IV.7-178
BLM LUPA Conservation Analysis for Natural Communities – Alternative 2

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	NLCS (acres)[2]	ACEC (acres)	Wildlife Allocations (acres)	Total Conservation (acres)	% of Available Lands
California annual forb/grass vegetation	1,000	0	700	0	0	700	60%
Riparian							
Madrean Warm Semi-Desert Wash Woodland/Scrub	502,000	104,000	307,000	2,000	0	413,000	82%
Mojavean semi-desert wash scrub	11,000	1,000	8,000	200	0	9,000	87%
Sonoran-Coloradan semi-desert wash woodland/scrub	122,000	28,000	55,000	500	0	84,000	68%
Southwestern North American riparian evergreen and deciduous woodland	400	0	200	200	0	400	94%
Southwestern North American riparian/wash scrub	10,000	600	5,000	50	0	6,000	56%
Wetland							
Arid West freshwater emergent marsh	10	0	0	0	0	0	18%
Californian warm temperate marsh/seep	0	0	0	0	0	0	93%
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	147,000	13,000	100,000	200	0	114,000	77%
Open Water	700	0	200	0	0	200	37%
Playa	26,000	300	24,000	100	90	25,000	94%

Table IV.7-178
BLM LUPA Conservation Analysis for Natural Communities – Alternative 2

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	NLCS (acres)[2]	ACEC (acres)	Wildlife Allocations (acres)	Total Conservation (acres)	% of Available Lands
Southwestern North American salt basin and high marsh	122,000	2,000	72,000	4,000	0	78,000	64%
Wetland	100	0	20	0	0	20	16%
Other Land Cover							
Agriculture	6,000	0	2,000	100	0	2,000	34%
Developed and Disturbed Areas	44,000	200	2,000	200	0	2,000	6%
Not Mapped	800	0	200	0	0	200	27%
Rural	3,000	0	1,000	60	0	1,000	47%
Total	**9,471,000**	**3,101,000**	**4,858,000**	**73,000**	**700**	**8,032,000**	**85%**

[1] Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on BLM-administered land

[2] Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), on BLM-administered land.

Notes: Conservation acreages reported for Existing Conservation and BLM LUPA conservation designations reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Overlaps of ACECs or Wildlife Allocations with NLCS designations are reported as NLCS designations. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Covered Species Habitat

Table IV.7-179 shows the conservation of Covered Species modeled habitat under the Alternative 2 (before the application of CMAs) under the BLM LUPA. Generally, the percent conservation of Covered Species modeled habitat in available lands is highly variable, ranging from 31% for greater sandhill crane and Yuma clapper rail to 93% for triple-ribbed milk-vetch.

Most of the conserved modeled habitats for desert tortoise and Mojave fringe-toed lizard are in the Mojave Desert in areas that are in the NLCSs. Flat-tailed horned lizard modeled habitat is mainly conserved in the NLCSs in the Imperial Borrego Valley subarea. Tehachapi slender salamander modeled habitat occurs in the Tehachapi Mountains where conservation is primarily composed of ACECs. Furthermore, the siting of the DFAs under Alternative 2 largely avoids habitat for Mojave fringe-toed lizard and Tehachapi slender salamander, and CMAs require avoidance of and setbacks from riparian habitat, wetland habitat, and dune habitat would further avoid and minimize the impacts on these species.

Conservation of bird species associated primarily with wetland and riparian habitats, including California black rail, least Bell's vireo, southwestern willow flycatcher, tricolored blackbird, western yellow-billed cuckoo, and Yuma clapper rail would be augmented by CMAs requiring avoidance of and setbacks from riparian and wetland habitats. Conservation of suitable habitat Bendire's thrasher occurs mainly in NLCSs. Suitable habitat for burrowing owl, widespread, but mainly associated with open areas in the West Mojave and Eastern Slopes and agricultural areas in the Imperial Borrego Valley, would primarily be conserved in NLCSs.

California condor mainly occurs in the West Mojave and Eastern Slopes subarea so the majority of conservation is also in this subarea with most of the conserved acreage in NLCSs. Golden eagle modeled suitable habitat and associated conservation is widespread in the Plan Area with most of the conservation in existing conservation areas and NLCSs. Swainson's hawk is primarily associated with the West Mojave and Eastern Slopes and Owens River Valley subareas; the majority of suitable habitat conserved is in NLCSs. In addition to conservation of suitable habitat, CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs.

Most of the modeled suitable habitat for Gila woodpecker is conserved in NLCSs. Conservation of mountain plover suitable habitat is almost entirely within the NLCSs.

Conservation of suitable habitat for desert pupfish is mostly in NLCSs. In addition, avoidance and setback provisions for managed wetlands and agricultural drains would conserve wetland and riparian features within the agricultural matrix and provide

conservation benefits to desert pupfish. Owens pupfish and Owens tui chub are conserved primarily in existing conservation areas and NLCSs.

Conservation of suitable habitat for bighorn sheep, both inter-mountain and mountain habitat, is mainly in existing conservation areas and NLCSs. The siting of the DFAs under Alternative 2 largely avoid habitat for bighorn sheep. The total conserved acreage of suitable habitat for burro deer, desert kit fox, and Mojave ground squirrel is conserved mainly in NLCSs. Suitable habitat for the covered bat species—California leaf-nosed bat, pallid bat, and Townsend's big-eared bat—is also mainly conserved in NLCSs. In addition to conservation of suitable habitat for covered mammal species, the CMAs require avoidance of and setbacks from riparian and wetland habitat that would reduce impacts on these habitats used by Mohave ground squirrel, California leaf-nosed bat, pallid bat, and Townsend's big-eared bat.

Conservation of plant species ranges from 30% of suitable habitat for Owens Valley checkerbloom to 93% of suitable habitat for triple-ribbed milk-vetch. The proportion of suitable habitat is conserved in existing conservation and BLM LUPA conservation designations, and varies by species. However, in addition to the conservation of modeled suitable habitat, the CMAs require surveys for plant Covered Species for all Covered Activities, and the CMAs requiring avoidance of and setbacks from occupied habitat would further reduce the impacts on these species.

In addition to conservation of suitable habitat for Covered Species, compensation CMAs would offset habitat loss for all Covered Species.

Table IV.7-179
BLM LUPA Conservation Analysis for Covered Species Habitat – Alternative 2

Species	Available Lands (acres)	Existing Conservation[1] (acres)	NLCS (acres)[2]	ACEC (acres)	Wildlife Allocation (acres)	Total Conservation (acres)	% of Available Lands
Amphibian/Reptile							
Agassiz's desert tortoise	5,799,000	1,869,000	3,186,000	33,000	300	5,088,000	88%
Flat-tailed horned lizard	428,000	36,000	266,000	2,000	-	304,000	71%
Mojave fringe-toed lizard	731,000	214,000	412,000	3,000	300	629,000	86%
Tehachapi slender salamander	7,000	-	1,000	5,000	50	7,000	92%
Bird							
Bendire's thrasher	773,000	266,000	427,000	4,000	-	697,000	90%

Table IV.7-179
BLM LUPA Conservation Analysis for Covered Species Habitat – Alternative 2

Species	Available Lands (acres)	Existing Conservation[1] (acres)	NLCS (acres)[2]	ACEC (acres)	Wildlife Allocation (acres)	Total Conservation (acres)	% of Available Lands
Burrowing owl	1,707,000	144,000	1,038,000	16,000	80	1,198,000	70%
California black rail	31,000	1,000	10,000	60	-	11,000	35%
California condor	242,000	37,000	131,000	22,000	50	190,000	78%
Gila woodpecker	38,000	700	16,000	80	-	17,000	46%
Golden eagle–foraging	6,216,000	2,539,000	2,884,000	45,000	300	5,469,000	88%
Golden eagle–nesting	2,421,000	1,334,000	858,000	29,000	300	2,220,000	92%
Greater sandhill crane	3,000	-	900	30	-	1,000	31%
Least Bell's vireo	69,000	28,000	33,000	2,000	50	63,000	91%
Mountain plover	7,000	80	3,000	100	-	3,000	45%
Southwestern willow flycatcher	46,000	5,000	17,000	4,000	40	27,000	59%
Swainson's hawk	112,000	6,000	34,000	4,000	-	45,000	40%
Tricolored blackbird	13,000	5,000	4,000	200	-	9,000	70%
Western yellow-billed cuckoo	19,000	4,000	8,000	300	-	12,000	65%
Yuma clapper rail	5,000	30	2,000	10	-	2,000	31%
Fish							
Desert pupfish	500	20	300	-	-	300	67%
Owens pupfish	4,000	600	600	50	-	1,000	32%
Owens tui chub	4,000	600	600	50	-	1,000	32%
Mammal							
Bighorn sheep – inter-mountain habitat	2,243,000	785,000	1,166,000	20,000	90	1,971,000	88%
Bighorn sheep – mountain habitat	3,568,000	1,821,000	1,406,000	10,000	300	3,238,000	91%
California leaf-nosed bat	4,444,000	1,442,000	2,389,000	15,000	300	3,845,000	87%
Mohave ground squirrel	999,000	104,000	605,000	23,000	-	732,000	73%
Pallid bat	8,943,000	3,024,000	4,579,000	67,000	700	7,671,000	86%

Table IV.7-179
BLM LUPA Conservation Analysis for Covered Species Habitat – Alternative 2

Species	Available Lands (acres)	Existing Conservation[1] (acres)	NLCS (acres)[2]	ACEC (acres)	Wildlife Allocation (acres)	Total Conservation (acres)	% of Available Lands
Townsend's big-eared bat	7,599,000	2,330,000	4,036,000	61,000	600	6,428,000	85%
Plant							
Alkali mariposa-lily	2,000	-	1,000	-	-	1,000	65%
Bakersfield cactus	77,000	3,000	62,000	4,000	-	68,000	89%
Barstow woolly sunflower	72,000	400	46,000	400	-	47,000	65%
Desert cymopterus	67,000	4,000	55,000	400	-	59,000	89%
Little San Bernardino Mountains linanthus	80,000	6,000	46,000	200	-	52,000	65%
Mojave monkeyflower	116,000	23,000	78,000	200	-	102,000	87%
Mojave tarplant	136,000	29,000	87,000	4,000	50	121,000	89%
Owens Valley checkerbloom	55,000	12,000	2,000	2,000	-	17,000	30%
Parish's daisy	85,000	34,000	32,000	50	-	66,000	77%
Triple-ribbed milk-vetch	4,000	4,000	100	-	-	4,000	93%

[1] Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on BLM-administered land.

[2] Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), on BLM-administered land

Notes: Conservation acreages reported for Existing Conservation and BLM LUPA conservation designations reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Overlaps of ACECs or Wildlife Allocations with NLCS designations are reported as NLCS designations. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For Agassiz's desert tortoise, desert tortoise important areas were identified that include tortoise conservation areas (TCAs), desert tortoise linkages, and desert tortoise high priority habitat (see desert tortoise BGOs in Appendix C). Table IV.7-180 provides a conservation analysis for these desert tortoise important areas, organized by desert tortoise Recovery Units: Colorado Desert, Eastern Mojave, and Western Mojave. Within the Colorado Desert Recovery Unit, 92% of TCAs, linkage habitat, and high priority habitat

would be conserved under Alternative 2. Within the Eastern Mojave Recovery Unit, 92% of the important areas would be conserved Alternative 2. Within the Western Mojave Recovery Unit, 88% of TCAs and linkage habitat would be conserved under Alternative 2. Under Alternative 2, the CMAs would not prohibit the development of Covered Activities in the TCAs (AM-DFA-ICS-5 (Alternative 2)). Additionally under Alternative 2, the CMAs would require that impacts to desert tortoise linkage only limit impact to the minimum functionality within each linkage (AM-DFA-ICS-6 (Alternative 2)). Compensation CMAs would be required for impacts to desert tortoise, including desert tortoise important areas.

Table IV.7-180
BLM LUPA Conservation Analysis for Desert Tortoise Important Areas – Alternative 2

Recovery Unit	Desert Tortoise Important Areas	Available Lands (acres)	Existing Conservation[1] (acres)	NLCS (acres)[2]	ACEC (acres)	Wildlife Allocation (acres)	Total Conservation (acres)	% of Available Lands
Colorado Desert	High Priority Habitat	354,000	156,000	150,000	500	-	306,000	87%
	Linkage	406,000	126,000	250,000	1,000	300	377,000	93%
	TCA	1,728,000	454,000	1,144,000	13,000	-	1,611,000	93%
Colorado Desert Total		*2,488,000*	*735,000*	*1,544,000*	*14,000*	*300*	*2,294,000*	*92%*
Eastern Mojave	Linkage	728,000	418,000	246,000	1,000	-	665,000	91%
	TCA	239,000	56,000	168,000	400	-	225,000	94%
Eastern Mojave Total		*967,000*	*474,000*	*414,000*	*1,000*	-	*890,000*	*92%*
Western Mojave	Linkage	796,000	387,000	305,000	700	-	693,000	87%
	TCA	964,000	129,000	717,000	8,000	-	854,000	89%
Western Mojave Total		*1,759,000*	*517,000*	*1,022,000*	*8,000*	-	*1,547,000*	*88%*
Grand Total		5,215,000	1,726,000	2,980,000	24,000	300	4,731,000	91%

[1] Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on BLM-administered land

[2] Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), on BLM-administered land

Notes: Conservation acreages reported for Existing Conservation and BLM LUPA conservation designations reflect application of the conservation percentage assumptions as described in Section IV.7.1.1.2.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Overlaps of ACECs or Wildlife Allocations with NLCS designations are reported as NLCS designations. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For Mohave ground squirrel, Mohave ground squirrel important areas were identified that include key population centers, linkages, expansion areas, and climate change extension areas (see Mohave ground squirrel BGOs in Appendix C). Table IV.7-181 provides a conservation analysis for these Mohave ground squirrel important areas. Approximately 69% of key population centers and 73% of linkages would be conserved under Alternative 2. Expansion areas and climate change extension areas would be conserved at 86% and 66% respectively. The CMAs would prohibit impacts that affect the viability of linkages. Compensation CMAs would be required for impacts to Mohave ground squirrel, including Mohave ground squirrel important areas.

Table IV.7-181
BLM LUPA Conservation Analysis for
Mohave Ground Squirrel Important Areas – Alternative 2

Mohave Ground Squirrel Important Area Type	Available Lands (acres)	Existing Conservation[1] (acres)	NLCS (acres)[2]	ACEC (acres)	Wildlife Allocation (acres)	Total Conservation (acres)	% of Available Lands
Key Population Center	299,000	18,000	181,000	7,000	-	206,000	69%
Linkage	280,000	24,000	170,000	10,000	-	204,000	73%
Expansion Area	282,000	45,000	196,000	2,000	-	243,000	86%
Climate Change Extension	92,000	14,000	44,000	3,000	-	61,000	66%
Total	**954,000**	**101,000**	**591,000**	**22,000**	**-**	**714,000**	**75%**

[1] Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on BLM-administered land

[2] Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), on BLM-administered land

Notes: Conservation acreages reported for Existing Conservation and BLM LUPA conservation designations reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Overlaps of ACECs or Wildlife Allocations with NLCS designations are reported as NLCS designations. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Within the Plan Area, critical habitat has been designated by the USFWS for the following Covered Species: desert tortoise, southwestern willow flycatcher, desert pupfish, and Parish's daisy. For desert tortoise, approximately 92% of the desert tortoise designated critical habitat on BLM-administered lands would be conserved under Alternative 2, including 606,000 acres in existing conservation areas and 1,846,000 acres in BLM LUPA conservation designations. For southwestern willow flycatcher, approximately 95% of the southwestern willow flycatcher designated critical habitat on BLM-administered lands

would be conserved in Reserve Design Lands under Alternative 2, including 300 acres in existing conservation areas and 40 acres in BLM LUPA conservation designations. For desert pupfish, approximately 95% of the desert pupfish designated critical habitat on BLM-administered lands would be conserved in Reserve Design Lands under Alternative 2, including 20 acres in existing conservation areas and 400 acres in BLM LUPA conservation designations. For Parish's daisy, approximately 88% of the Parish's daisy designated critical habitat on BLM-administered lands would be conserved in Reserve Design Lands under Alternative 2, including 900 acres in BLM LUPA conservation designations.

Non-Covered Species Critical Habitat

Ten Non-Covered Species have Critical Habitat within BLM LUPA Lands. Table IV.7-182 shows the total amount of Critical Habitat and the amount within each LUPA conservation designation for Non-Covered Species. These conservation designations are considered beneficial impacts for biological resources. All or a substantial portion of each species' Critical Habitat in the BLM LUPA Lands would be within one of the conservation designations. Critical Habitat for Pierson's milk-vetch and bighorn sheep occurs mostly within existing conservation, but mostly within National Conservation Lands for the other species. Critical Habitat for the Pierson's milk-vetch is managed under the Imperial Sand Dunes RAMP, which provides protections for critical habitat within conservation areas and areas designated as closed to motorized (e.g. off-highway vehicle) use.

Table IV.7-182
Critical Habitat within BLM LUPA Conservation Designations for Non-Covered Species – Alternative 2

Common Name	Acres of Critical Habitat within BLM LUPA Lands	Existing Conservation	NLCS (acres)	ACEC (acres)	Wildlife Allocations (acres)	Total in Conservation
Amargosa nitrophila	1,000	0	1,000	0	0	1,000
Amargosa vole	4,000	1,000	2,000	0	0	3,000
Arroyo toad	30	0	30	0	0	30
Ash Meadows gumplant	300	0	300	0	0	300
Cushenbury buckwheat	400	0	400	0	0	400
Cushenbury milk-vetch	900	0	800	10	0	810
Cushenbury oxytheca	80	0	80	0	0	80
Lane Mountain milk-vetch	10,000	50	9,000	900	0	9,950
Pierson's milk-vetch	12,000	12,000[2]	200	0	0	3,200
Peninsular Bighorn sheep	7,000	5,000	2,000	0	0	7,000

[1] NLCS and ACEC designations overlap, the entire Amargosa Valley, which contains the Amargosa vole critical habitat, is located within an ACEC.

[2] Pierson's milk-vetch are protected within areas designated as closed to motorized vehicles in the Imperial Sand Dunes RAMP. The ISDRA RAMP is not considered part of the DRECP decision area.

IV.7.3.4.3 Impacts of Natural Community Conservation Plan: Alternative 2

The impacts and mitigation measures for renewable energy and transmission development of the NCCP for Alternative 2 would be the same as those defined in Section IV.7.3.4.1 for the Plan-wide analysis.

As described in Section II.3.3 of Volume II, the NCCP would establish conservation designations within the Reserve Design Lands under each alternative. To reflect the conservation that would occur under the NCCP, the NCCP elements of each alternative define the following means of providing conservation within Reserve Design Lands:

- An **NCCP Conceptual Plan-Wide Reserve Design**, which defines the areas that are considered to be the highest priority for biological conservation. These priority conservation areas include both BLM lands and other lands, including private land and nonfederal public land. These priority conservation areas are consistent with those identified in the interagency plan-wide alternatives.
- A **DRECP NCCP Reserve Design**, which nested within the NCCP Conceptual Plan-Wide Reserve Design. The DRECP NCCP Reserve Design identifies those lands within BLM LUPA conservation designations that would be protected, maintained, and managed to preserve their conservation value for Covered Species for at least the duration of the NCCP. Within non-BLM lands, areas identified within the DRECP NCCP Reserve Design would be given a high priority for conservation through the purchase of private lands from willing sellers or placement of conservation easements on public lands. BLM lands and non-BLM Lands included in the DRECP NCCP Reserve Design would receive long-term protection and would be conserved and managed to preserve and enhance habitat for Covered Species.
- **Other conservation actions**, which would occur outside of the DRECP NCCP Reserve Design and NCCP Conceptual Plan-Wide Reserve Design and include the maintenance and management of all of the BLM LUPA conservation designation lands in accordance with the BLM LUPA conservation designations.

The following provides the conservation analysis for the NCCP.

Landscape

Habitat Linkages

Table IV.7-183 shows the conservation of the desert linkage network under Alternative 2 for the NCCP. Conservation of the desert linkage network totals more than 2.5 million acres

(71%). Approximately 363,000 acres of the desert linkage network would be inside the DRECP NCCP Reserve Design (287,000 acres on BLM Land and 76,000 acres on non-BLM land). Approximately 987,000 acres of the desert linkage network would be inside the NCCP Conceptual Plan-Wide Reserve Design and 860,000 acres would be outside the NCCP Conceptual Plan-Wide Reserve Design. In addition to conservation of the desert linkage network, CMAs provide for the avoidance and minimization of certain linkages in the DFAs (see Section IV.7.3.2.2.1).

Table IV.7-183
NCCP Conservation Analysis for the Desert Linkage Network – Alternative 2

Desert Linkage Network by Ecoregion Subarea	Existing Conservation (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the DRECP NCCP Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Cadiz Valley and Chocolate Mountains	187,000	37,000	174,000	7,000	38,000	227,000	10,000	680,000
Imperial Borrego Valley	14,000	-	34,000	-	1,000	44,000	600	94,000
Kingston and Funeral Mountains	28,000	71,000	37,000	6,000	3,000	6,000	70	151,000
Mojave and Silurian Valley	179,000	1,000	65,000	-	15,000	132,000	7,000	400,000
Owens River Valley	40	11,000	-	3,000	-	60	20	14,000
Panamint Death Valley	109,000	20	35,000	-	2,000	40,000	600	186,000
Pinto Lucerne Valley and Eastern Slopes	16,000	73,000	30,000	14,000	6,000	10,000	900	150,000
Piute Valley and Sacramento Mountains	14,000	-	-	-	2,000	96,000	2,000	114,000
Providence and Bullion Mountains	144,000	-	300	-	50	199,000	7,000	350,000
West Mojave and Eastern Slopes	45,000	94,000	120,000	47,000	62,000	59,000	17,000	443,000
Grand Total	**736,000**	**287,000**	**495,000**	**76,000**	**129,000**	**814,000**	**46,000**	**2,584,000**

Notes: Conservation acreages reported for Existing Conservation and BLM LUPA conservation designations reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Hydrological Resources

A conservation analysis for hydrological resources is provided below, including playa, seep/spring, and the four major rivers in the Plan Area (i.e., Amargosa, Colorado, Mojave and Owens) for Alternative 2 under the NCCP. Conservation of riparian areas and wetlands, which co-occur with many of these hydrological resources is provided below under Natural Communities.

Playa

Overall, approximately 212,000 acres would be conserved under Alternative 2 under the NCCP. Approximately 300 acres are within the DRECP NCCP Reserve Design (approximately 100 on BLM land and approximately 200 acres on non-BLM land). Approximately 8,000 acres of the playa acreage conserved is inside NCCP Conceptual Plan-Wide Reserve Design and approximately 110,000 acres are outside the NCCP Conceptual Plan-Wide Reserve Design. Additionally, playas and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks. CMAs for playas would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided riparian or wetland natural communities.

Seep/Spring

Overall, 329 locations of the seep/spring locations would be conserved under Alternative 2 under the NCCP. There are 47 seep/spring locations within the DRECP NCCP Reserve Design (28 on BLM land and 19 on non-BLM land). Approximately 89 seep/spring locations are inside NCCP Conceptual Plan-Wide Reserve Design and approximately 50 seep/spring locations are outside the NCCP Conceptual Plan-Wide Reserve Design. Seeps and springs and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks. CMAs for seep/spring locations would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided wetland natural communities.

Major Rivers

None of the major rivers are conserved within the DRECP NCCP Reserve Design. Approximately 740,000 feet of the major rivers (Amargosa, Colorado, and Mojave) are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 113,000 feet of the Amargosa River are conserved outside the NCCP Conceptual Plan-Wide Reserve

Design. Major rivers and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks.

Dune and Sand Resources

Approximately half of the dunes and sand resources would be conserved in existing conservation areas under the NCCP. Approximately 21,000 acres are within the DRECP NCCP Reserve Design (approximately 14,000 acres on BLM land and approximately 6,000 acres on non-BLM land). Approximately 119,000 acres of the dunes and sand resources are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 491,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. Dunes and sand resources and associated Covered Species, natural communities, and ecological functions would be avoided through application of the dune avoidance and minimization CMAs.

Environmental Gradients

The conservation analysis addresses four types of environmental gradients in the Plan Area: elevation, landforms, slope, and aspect. The conservation of these four environmental gradients under Alternative 2 under the NCCP would follow the same overall pattern as Plan-wide conservation.

Natural Communities

Table IV.7-184 shows the conservation to natural communities under the NCCP. A conservation summary by general community is provided below in comparison to Plan-wide conservation discussed in Section IV.7.3.2.1.2.

California forest and woodlands

Overall, approximately 65,000 acres (44%) of California and forest woodlands would be conserved under Alternative 2 under the NCCP. Approximately 9,000 acres are within the DRECP NCCP Reserve Design (approximately 4,000 acres on BLM land and approximately 5,000 acres on non-BLM land). Approximately 9,000 acres of California forest and woodlands are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 30,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. In addition to conservation of California forest and woodlands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 34,000 acres (31%) of chaparral and coastal scrubs would be conserved under Alternative 2 under the NCCP. Approximately 5,000 acres are within the DRECP NCCP Reserve Design (approximately 4,000 acres on BLM land and approximately 1,000 acres on non-BLM land). Approximately 8,000 acres of chaparral and coastal scrubs are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 11,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. In addition to conservation of chaparral and coastal scrubs, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert conifer woodlands

Overall, approximately 190,000 acres (66%) of desert conifer woodlands would be conserved under Alternative 2 under the NCCP. Approximately 8,000 acres are within the DRECP NCCP Reserve Design (approximately 6,000 acres on BLM land and approximately 3,000 acres on non-BLM land). Approximately 12,000 acres of desert conifer woodlands are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 18,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. In addition to conservation of desert conifer woodlands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert outcrop and badlands

Overall, approximately 1,339,000 acres (83%) of desert outcrop and badlands would be conserved under Alternative 2 under the NCCP. Approximately 21,000 acres are within the DRECP NCCP Reserve Design (approximately 16,000 acres on BLM land and approximately 5,000 acres on non-BLM land). Approximately 176,000 acres of desert outcrop and badlands are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 361,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. In addition to conservation of desert outcrop and badlands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert scrubs

Overall, approximately 9,917,000 acres (75%) of desert scrubs would be conserved under Alternative 2 under the NCCP. Approximately 590,000 acres are within the DRECP NCCP Reserve Design (approximately 424,000 acres on BLM land and approximately 166,000 acres on non-BLM land). Approximately 1,840,000 acres of desert scrubs are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 2,444,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. In addition to conservation of desert scrubs, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Dunes

Overall, approximately 223,000 acres (79%) of dunes would be conserved under Alternative 2 under the NCCP. Approximately 800 acres are within the DRECP NCCP Reserve Design (approximately 200 acres on BLM land and approximately 500 acres on non-BLM land). Approximately 42,000 acres of dunes are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 35,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. In addition, CMA application would require avoidance of all dunes and prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

Grasslands

Overall, approximately 53,000 acres (22%) of grasslands would be conserved under Alternative 2 under the NCCP. Approximately 9,000 acres are within the DRECP NCCP Reserve Design (approximately 6,000 acres on BLM land and approximately 3,000 acres on non-BLM land). Approximately 199,000 acres of grasslands are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 244,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. In addition to conservation of grasslands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Riparian

Overall, approximately 713,000 acres (72%) of riparian communities would be conserved under Alternative 2 under the NCCP. Approximately 17,000 acres are within the DRECP NCCP Reserve Design (approximately 14,000 acres on BLM land and approximately 4,000

acres on non-BLM land). Approximately 190,000 acres of riparian are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 244,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. In addition, CMA application would require avoidance of and setbacks from all riparian communities as well as to other CMAs that would benefit riparian communities beyond simply conservation.

Wetlands

Overall, approximately 474,000 acres (55%) of wetland communities would be conserved under Alternative 2 under the NCCP. Approximately 27,000 acres are within the DRECP NCCP Reserve Design (approximately 8,000 acres on BLM land and approximately 19,000 acres on non-BLM land). Approximately 96,000 acres of wetlands are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 189,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. In addition, CMA application would require avoidance of and setbacks from Arid West freshwater emergent marsh and Californian warm temperate marsh/seep as well as other CMAs that would benefit riparian communities beyond simply conservation.

Table IV.7-184
NCCP Conservation Analysis for Natural Communities –Alternative 2

Natural Community	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
California forest and woodland								
Californian broadleaf forest and woodland	1,000	300	10	100	0	9,000	10,000	21,000
Californian montane conifer forest	25,000	4,000	90	5,000	0	7,000	4,000	44,000
Chaparral and coastal scrub community (Cismontane scrub)								
Californian mesic chaparral	20	10	0	0	0	400	600	1,000
Californian pre-montane chaparral	0	0	0	0	0	300	200	500
Californian xeric chaparral	3,000	300	10	600	10	2,000	3,000	9,000
Central and south coastal California seral scrub	0	0	0	0	0	20	30	40
Central and South Coastal Californian coastal sage scrub	2,000	3,000	2,000	800	700	3,000	2,000	14,000
Western Mojave and Western Sonoran Desert borderland chaparral	9,000	20	0	10	0	60	800	10,000

Table IV.7-184
NCCP Conservation Analysis for Natural Communities –Alternative 2

Natural Community	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Desert conifer woodlands								
Great Basin Pinyon - Juniper Woodland	159,000	6,000	3,000	3,000	1,000	8,000	10,000	190,000
Desert outcrop and badlands								
North American warm desert bedrock cliff and outcrop	802,000	16,000	133,000	5,000	22,000	345,000	16,000	1,339,000
Desert Scrub								
Arizonan upland Sonoran desert scrub	44,000	0	0	40	400	1,000	400	46,000
Intermontane deep or well-drained soil scrub	30,000	11,000	28,000	2,000	2,000	8,000	2,000	82,000
Intermontane seral shrubland	1,000	2,000	800	500	1,000	1,000	1,000	8,000
Inter-Mountain Dry Shrubland and Grassland	110,000	93,000	500	19,000	300	30,000	7,000	258,000
Intermountain Mountain Big Sagebrush Shrubland and steppe	9,000	2,000	700	500	20	12,000	7,000	31,000
Lower Bajada and Fan Mojavean - Sonoran desert scrub	4,561,000	223,000	899,000	123,000	206,000	2,141,000	114,000	8,268,000

Table IV.7-184
NCCP Conservation Analysis for Natural Communities –Alternative 2

Natural Community	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Mojave and Great Basin upper bajada and toeslope	838,000	87,000	78,000	19,000	15,000	42,000	17,000	1,097,000
Shadscale - saltbush cool semi-desert scrub	38,000	5,000	11,000	2,000	7,000	44,000	16,000	123,000
Southern Great Basin semi-desert grassland	0	0	0	0	0	40	0	40
Dunes								
North American warm desert dunes and sand flats	146,000	200	35,000	500	6,000	31,000	4,000	223,000
Grassland								
California Annual and Perennial Grassland	23,000	6,000	2,000	3,000	4,000	5,000	8,000	51,000
California annual forb/grass vegetation	400	80	400	60	300	300	200	2,000
Riparian								
Madrean Warm Semi-Desert Wash Woodland/Scrub	195,000	4,000	98,000	400	25,000	207,000	7,000	535,000

Table IV.7-184
NCCP Conservation Analysis for Natural Communities –Alternative 2

Natural Community	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Mojavean semi-desert wash scrub	7,000	700	4,000	900	1,000	4,000	1,000	18,000
Sonoran-Coloradan semi-desert wash woodland/scrub	70,000	8,000	26,000	2,000	5,000	21,000	2,000	134,000
Southwestern North American riparian evergreen and deciduous woodland	500	50	10	70	1,000	400	500	3,000
Southwestern North American riparian/wash scrub	7,000	200	4,000	300	8,000	1,000	2,000	23,000
Wetland								
Arid West freshwater emergent marsh	40	0	0	0	800	0	400	1,000
Californian warm temperate marsh/seep	0	0	0	0	0	0	80	80
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	136,000	60	17,000	200	1,000	83,000	5,000	242,000

Table IV.7-184
NCCP Conservation Analysis for Natural Communities –Alternative 2

Natural Community	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Open Water	23,000	10	10	900	1,000	200	23,000	48,000
Playa	400	0	0	0	2,000	24,000	10,000	36,000
Southwestern North American salt basin and high marsh	31,000	8,000	32,000	18,000	16,000	37,000	6,000	146,000
Wetland	30	0	0	300	20	20	400	700
Other Land Cover								
Agriculture	6,000	90	600	500	2,000	1,000	2,000	12,000
Developed and Disturbed Areas	3,000	200	400	200	200	2,000	2,000	8,000
Not Mapped	200	10	40	200	30	200	300	900
Rural	900	90	50	4,000	1,000	1,000	8,000	16,000
Total	**7,279,000**	**481,000**	**1,375,000**	**212,000**	**330,000**	**3,072,000**	**291,000**	**13,041,000**

[1] Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs)

Notes: Conservation acreages reported reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Covered Species Habitat

Table IV.7-185 shows the conservation of Covered Species modeled habitat under Alternative 2 before the application of CMAs under the NCCP. Generally, the percent conservation of Covered Species modeled habitat in available lands is highly variable, ranging from 1% for greater sandhill crane (primarily found in agricultural areas) to 85% for bighorn sheep mountain habitat.

None of the modeled habitat for flat-tailed horned lizard and Tehachapi slender salamander is inside the DRECP NCCP Reserve Design. Less than 10% each of the total conserved suitable habitats for Agassiz's desert tortoise and Mojave fringe-toed lizard are inside the DRECP NCCP Reserve Design. None of the suitable habitat for Tehachapi slender salamander is inside the NCCP Conceptual Plan-Wide Reserve Design. Flat-tailed horned lizard is the only amphibian/reptile species with a substantial acreage of suitable habitat inside the NCCP Conceptual Plan-Wide Reserve Design. About half of the conserved suitable habitat for Mojave fringe-toed lizard is outside the NCCP Conceptual Plan-Wide Reserve Design. Almost all of the conserved suitable habitat for Tehachapi slender salamander is outside the NCCP Conceptual Plan-Wide Reserve Design. The siting of the DFAs under Alternative 2 largely avoids habitat for Mojave fringe-toed lizard and Tehachapi slender salamander, and CMAs require avoidance of and setbacks from riparian habitat, wetland habitat, and dune habitat would further avoid and minimize the impacts on these species.

California condor has the greatest proportion of its conserved suitable habitat conserved inside the DRECP NCCP Reserve Design compared to other bird species, including California black rail, Gila woodpecker, greater sandhill crane, western yellow-billed cuckoo, and Yuma clapper rail, which have no suitable habitat conserved inside the DRECP NCCP Reserve Design. Conservation of bird species habitat conserved inside the NCCP Conceptual Plan-Wide Reserve Design ranges from 11% of conserved suitable golden eagle nesting habitat to 50% of western yellow-billed cuckoo conserved suitable habitat. Conservation outside of the NCCP Conceptual Plan-Wide Reserve Design ranges from 6% of conserved greater sandhill crane suitable modeled habitat to 45% of conserved Swainson's hawk suitable modeled habitat. Conservation of bird species associated primarily with wetland and riparian habitats (i.e., California black rail, least Bell's vireo, southwestern willow flycatcher, tricolored blackbird, western yellow-billed cuckoo, and Yuma clapper rail) would be augmented by CMAs requiring avoidance of and setbacks from riparian and wetland habitats. In addition to conservation of suitable habitat, CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs.

None of the modeled suitable habitat for fish species is inside the DRECP NCCP Reserve Design. Approximately 10% of the modeled suitable habitat for desert pupfish and Mojave tui chub is inside the NCCP Conceptual Plan-Wide Reserve Design. While 50% of the

conserved suitable habitat for desert pupfish is outside of the NCCP Conceptual Plan-Wide Reserve Design, none of the conserved suitable habitat for Mohave tui chub is outside of the NCCP Conceptual Plan-Wide Reserve Design. About 76% of the conserved suitable habitat for Owens pupfish and Owens tui chub is inside the NCCP Conceptual Plan-Wide Reserve Design and 21% is outside. Avoidance and setback provisions for managed wetlands and agricultural drains would conserve wetland and riparian features within the agricultural matrix and provide conservation benefits to desert pupfish.

Only 1-6% of the conserved suitable habitat for bat Covered Species and bighorn sheep is inside the DRECP NCCP Reserve Design while 18% of conserved suitable habitat for Mohave ground squirrel is inside the DRECP NCCP Reserve Design. There is also 62% of the conserved suitable habitat for Mohave ground squirrel inside the NCCP Conceptual Plan-Wide Reserve Design (19% outside). Conserved suitable habitat for bat Covered Species are 13-19% inside the NCCP Conceptual Plan-Wide Reserve Design (26-32% outside). Approximately 10-15% of the conserved suitable habitat for bighorn sheep (inter-mountain and mountain habitat) is inside the NCCP Conceptual Plan-Wide Reserve Design while 18-25% is outside of it. The siting of the DFAs under Alternative 2 largely avoid habitat for bighorn sheep. In addition to conservation of suitable habitat for covered mammal species, the CMAs require avoidance of and setbacks from riparian and wetland habitat that would reduce impacts on these habitats used by Mohave ground squirrel, California leaf-nosed bat, pallid bat, and Townsend's big-eared bat.

Conservation of suitable habitat for plant species inside the DRECP NCCP Reserve Design ranges from 8% for Mojave monkeyflower to 52% for Mojave tarplant. Conservation of suitable habitat for plant species inside the NCCP Conceptual Plan-Wide Reserve Design ranges from 9% for alkali mariposa-lily to 93% for Barstow woolly sunflower. In addition to the conservation of modeled suitable habitat, the CMAs require surveys for plant Covered Species for all Covered Activities, and the CMAs requiring avoidance of and setbacks from occupied habitat would further reduce the impacts on these species.

In addition to conservation of suitable habitat for Covered Species, compensation CMAs would offset habitat loss for all Covered Species.

Table IV.7-185
NCCP Conservation Analysis for Covered Species Habitat –Alternative 2

Species	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Amphibian/Reptile								
Agassiz's desert tortoise	3,711,000	299,000	857,000	155,000	245,000	2,060,000	115,000	7,441,000
Flat-tailed horned lizard	151,000	-	224,000	-	23,000	44,000	4,000	446,000
Mojave fringe-toed lizard	403,000	12,000	16,000	2,000	5,000	387,000	20,000	847,000
Tehachapi slender salamander	300	-	-	-	-	7,000	7,000	14,000
Bird								
Bendire's thrasher	1,196,000	151,000	75,000	43,000	13,000	206,000	24,000	1,707,000
Burrowing owl	479,000	123,000	495,000	122,000	200,000	436,000	88,000	1,943,000
California black rail	21,000	-	5,000	-	5,000	5,000	2,000	38,000
California condor	81,000	82,000	4,000	17,000	2,000	68,000	61,000	314,000
Gila woodpecker	10,000	-	5,000	-	3,000	11,000	200	30,000
Golden eagle–foraging	5,518,000	366,000	794,000	74,000	162,000	1,768,000	123,000	8,806,000
Golden eagle–nesting	2,689,000	139,000	222,000	33,000	31,000	525,000	66,000	3,706,000
Greater sandhill crane	6,000	-	600	-	2,000	400	100	9,000
Least Bell's vireo	86,000	8,000	13,000	9,000	15,000	15,000	6,000	151,000

Table IV.7-185
NCCP Conservation Analysis for Covered Species Habitat –Alternative 2

Species	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Mountain plover	7,000	300	2,000	2,000	5,000	1,000	6,000	23,000
Southwestern willow flycatcher	18,000	10,000	4,000	7,000	15,000	8,000	12,000	73,000
Swainson's hawk	24,000	7,000	11,000	11,000	32,000	21,000	48,000	154,000
Tricolored blackbird	11,000	2,000	1,000	2,000	7,000	1,000	8,000	34,000
Western yellow-billed cuckoo	15,000	20	5,000	-	21,000	4,000	8,000	52,000
Yuma clapper rail	10,000	-	600	-	2,000	1,000	400	13,000
Fish								
Desert pupfish	900	-	90	-	10	200	300	1,000
Mohave tui chub	200	-	-	-	20	-	-	200
Owens pupfish	600	600	-	200	3,000	60	1,000	5,000
Owens tui chub	700	600	-	200	3,000	60	1,000	5,000
Mammal								
Bighorn sheep – inter-mountain habitat	1,904,000	124,000	290,000	36,000	34,000	772,000	35,000	3,195,000
Bighorn sheep – mountain habitat	4,085,000	164,000	322,000	41,000	48,000	930,000	60,000	5,652,000

Table IV.7-185
NCCP Conservation Analysis for Covered Species Habitat –Alternative 2

Species	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
California leaf-nosed bat	3,138,000	179,000	471,000	22,000	91,000	1,751,000	87,000	5,737,000
Mohave ground squirrel	216,000	97,000	357,000	118,000	158,000	173,000	52,000	1,171,000
Pallid bat	6,836,000	462,000	1,289,000	189,000	305,000	2,892,000	221,000	12,194,000
Townsend's big-eared bat	5,879,000	437,000	1,152,000	159,000	271,000	2,506,000	239,000	10,643,000
Plant								
Alkali mariposa-lily	200	700	-	100	30	300	8,000	9,000
Bakersfield cactus	20,000	44,000	-	8,000	-	22,000	10,000	103,000
Barstow woolly sunflower	3,000	16,000	28,000	23,000	12,000	2,000	600	85,000
Desert cymopterus	7,000	2,000	41,000	27,000	28,000	12,000	4,000	122,000
Little San Bernardino Mountains linanthus	87,000	39,000	-	16,000	-	7,000	2,000	151,000
Mojave monkeyflower	27,000	7,000	64,000	2,000	9,000	7,000	500	117,000
Mojave tarplant	48,000	68,000	100	14,000	300	24,000	6,000	159,000
Owens Valley checkerbloom	13,000	2,000	10	3,000	8,000	3,000	11,000	39,000

Table IV.7-185
NCCP Conservation Analysis for Covered Species Habitat –Alternative 2

Species	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Parish's daisy	82,000	27,000	90	8,000	30	5,000	200	122,000
Triple-ribbed milk-vetch	5,000	100	-	1,000	-	-	-	7,000

[1] Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs)

Notes: Conservation acreages reported reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For Agassiz's desert tortoise, desert tortoise important areas were identified that include tortoise conservation areas (TCAs), desert tortoise linkages, and desert tortoise high priority habitat (see desert tortoise BGOs in Appendix C). Table IV.7-186 provides a conservation analysis for these desert tortoise important areas under the NCCP, organized by desert tortoise Recovery Units: Colorado Desert, Eastern Mojave, and Western Mojave. Overall, approximately 414,000 acres of the desert tortoise important areas are inside the DRECP NCCP Reserve Design (343,000 acres on BLM land and 906,000 acres on non-BLM land). Approximately 1,555,000 acres of desert tortoise important areas are inside the NCCP Conceptual Plan-Wide Reserve Design and 1,847,000 acres are outside of it. Under Alternative 2, the CMAs would not prohibit the development of Covered Activities in the TCAs (AM-DFA-ICS-5 (Alternative 2)). Additionally under Alternative 2, the CMAs would require that impacts to desert tortoise linkage only limit impact to the minimum functionality within each linkage (AM-DFA-ICS-6 (Alternative 2)). Compensation CMAs would be required for impacts to desert tortoise, including desert tortoise important areas.

For Mohave ground squirrel, Mohave ground squirrel important areas were identified that include key population centers, linkages, expansion areas, and climate change extension areas (see Mohave ground squirrel BGOs in Appendix C). Table IV.7-187 provides a conservation analysis for these Mohave ground squirrel important areas under the NCCP. Approximately 287,000 acres of the Mohave ground squirrel important areas are inside the DRECP NCCP Reserve Design (155,000 acres on BLM land and 132,000 acres on non-BLM land). Approximately 664,000 acres of Mohave ground squirrel important areas are inside the NCCP Conceptual Plan-Wide Reserve Design and 213,000 acres are outside of it. The CMAs would prohibit impacts that affect the viability of linkages. Compensation CMAs would be required for impacts to Mohave ground squirrel, including Mohave ground squirrel important areas.

Table IV.7-186
NCCP Conservation Analysis for Desert Tortoise Important Areas –Alternative 2

Recovery Unit	Desert Tortoise Important Areas	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
			Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Colorado Desert	High Priority Habitat	157,000	22,000	-	5,000	-	128,000	5,000	317,000
	Linkage	126,000	13,000	-	4,000	-	239,000	10,000	391,000
	TCA	1,544,000	40,000	292,000	6,000	52,000	824,000	33,000	2,792,000
Colorado Desert Total		*1,827,000*	*75,000*	*292,000*	*14,000*	*52,000*	*1,191,000*	*48,000*	*3,500,000*
Eastern Mojave	Linkage	421,000	44,000	163,000	3,000	16,000	37,000	2,000	687,000
	TCA	1,758,000	118,000	18,000	9,000	4,000	32,000	9,000	1,949,000
Eastern Mojave Total		*2,179,000*	*162,000*	*181,000*	*12,000*	*21,000*	*69,000*	*11,000*	*2,636,000*
Western Mojave	Linkage	391,000	72,000	28,000	20,000	17,000	206,000	14,000	748,000
	TCA	1,061,000	35,000	404,000	25,000	145,000	286,000	20,000	1,976,000
Western Mojave Total		*1,452,000*	*107,000*	*432,000*	*44,000*	*162,000*	*492,000*	*35,000*	*2,724,000*
Grand Total		**5,458,000**	**343,000**	**906,000**	**71,000**	**235,000**	**1,753,000**	**94,000**	**8,860,000**

[1] Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs)

Notes: Conservation acreages reported reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to

the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Table IV.7-187
NCCP Conservation Analysis for Mohave Ground Squirrel Important Areas – Alternative 2

Mohave Ground Squirrel Important Area Type	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Key Population Center	47,000	54,000	47,000	54,000	47,000	54,000	47,000	54,000
Linkage	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000
Expansion Area	77,000	27,000	77,000	27,000	77,000	27,000	77,000	27,000
Climate Change Extension	28,000	44,000	28,000	44,000	28,000	44,000	28,000	44,000
Total	**181,000**	**155,000**	**181,000**	**155,000**	**181,000**	**155,000**	**181,000**	**155,000**

[1] Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs)

Notes: Conservation acreages reported reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

IV.7.3.4.4 Impacts of General Conservation Plan: Alternative 2

IV.7.3.4.4.1 General Conservation Plan Impacts and Mitigation Measures from Renewable Energy and Transmission Development

The impacts of the GCP for Alternative 2 would be similar to those defined in Section IV.7.3.2.1 for the Plan-wide analysis, but they would occur on nonfederal lands only. On nonfederal lands under the GCP, Alternative 2 includes DFAs (approximately 1,730,000 acres) and transmission corridors where approximately 100,000 acres of ground disturbance related impacts and operational impacts would occur.

Impact BR-1: Siting, construction, decommissioning, and operational activities would result in loss of native vegetation.

Table IV.7-188 shows the impacts to natural communities under Alternative 2 under the GCP. An effects summary by general community is provided below in relation to the Plan-wide effects analysis provided in Section IV.7.3.2.1.1. Appendix R2 provides a detailed analysis of natural community effects by ecoregion subarea.

<u>California forest and woodlands</u>

Overall, approximately 100 acres (0.1%) of California forest and woodlands would be impacted under Alternative 2 within the GCP, about a third of the Plan-wide effects. Most of the impacts are from solar and wind development in the Pinto Lucerne and Eastern Slopes subarea. The same CMAs that would be applied Plan-wide to reduce impacts to this general community and the plant and wildlife species it supports would also be applied under the GCP. This includes CMAs that address roosting covered bat species (AM-DFA-BAT-1, AM-RES-RL-BAT-1, and AM-RES-RL-BAT-2), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs would offset that effect (COMP-1 and COMP-2).

<u>Chaparral and coastal scrubs (Cismontane scrub)</u>

Overall, approximately 1,000 acres (1.3%) of chaparral and coastal scrubs would be impacted under Alternative 2 within the GCP Area, which is approximately the same acreage as the Plan-wide effects to this general community. Most of the impacts are from solar development in the West Mojave and Eastern Slopes and Pinto Lucerne Valley and Eastern Slopes subareas, but there would also be impacts from wind and transmission in these subareas. The same CMAs that would be applied Plan-wide to reduce impacts to this general community and the plant and wildlife species it supports would also be applied under the GCP. This includes CMAs that address breeding, nesting, or roosting

species (AM-DFA-BAT-1, AM-RES-RL-BAT-1, AM-RES-RL-BAT-2, AM-DFA-PLANT-1 through AM-DFA-PLANT-3, and AM-RES-RL-PLANT-1 through AM-RES-RL-PLANT-3), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs would offset that effect (COMP-1 and COMP-2).

Desert conifer woodlands

Overall, approximately 800 acres (0.7%) of desert conifer woodlands would be impacted under Alternative 2 under the GCP, which is approximately four-fifths of the Plan-wide effects. Most of the impacts are from solar development in the West Mojave and Eastern Slopes subarea, but there would also be impacts from wind and transmission and impacts in the Pinto Lucerne Valley and Eastern Slopes. The same CMAs that would be applied Plan-wide to reduce impacts to this general community and the plant and wildlife species it supports would also be applied under the GCP. This includes CMAs that address roosting covered bat species (AM-DFA-BAT-1, AM-RES-RL-BAT-1, and AM-RES-RL-BAT-2), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs would offset that effect (COMP-1 and COMP-2).

Desert outcrop and badlands

Overall, approximately 1,000 acres (0.6%) of desert outcrop and badlands would be impacted under Alternative 2 under the GCP, which constitutes only about 11% of the Plan-wide effects. Most of the impacts would be in the Imperial Borrego Valley subarea, but the Cadiz Valley and Chocolate Mountains and Pinto Lucerne and Eastern Slopes subareas would also have approximately 200 acres of impacts to desert outcrop and badlands each. Less than 100 acres of impacts to desert outcrop and badlands would occur in other subareas. The same CMAs that would be applied Plan-wide to reduce impacts to this general community and the plant and wildlife species it supports would also be applied under the GCP. This includes CMAs that address breeding, nesting, or roosting species (AM-DFA-BAT-1, AM-RES-RL-BAT-1, and AM-RES-RL-BAT-2), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs would offset that effect (COMP-1 and COMP-2).

Desert scrubs

Overall, approximately 39,000 acres (1.3%) of desert scrubs would be impacted under Alternative 2 under the GCP, which is less than half of the Plan-wide effects. Most of the impacts to desert scrubs under the GCP are in the West Mojave and Eastern Slopes subarea, but impacts occur in all subareas except for the Piute Valley and Sacramento

Mountains subarea. The same CMAs that would be applied Plan-wide to reduce impacts to this general community and the plant and wildlife species it supports would also be applied under the GCP. These include avoidance, setbacks, and/or suitable habitat impact caps for flat-tailed horned lizard (AM-RES-RL-ICS-8 and AM-RES-RL-ICS-9 and AM-DFA-ICS-16), Agassiz's desert tortoise (AM-DFA-ICS-3 through 4; AM-DFA-ICS-5 and 6 (Alternative 2), AM-DFA-ICS-7 through AM-DFA-ICS-15, and AM-RES-RL-ICS-1 through AM-RES-RL-ICS-7), Mohave ground squirrel (AM-DFA-ICS-36 through AM-DFA-ICS-43 and AM-RES-BLM-ICS-14 through AM-RES-BLM-ICS-17), bat Covered Species (AM-DFA-BAT-1, AM-RES-RL-BAT-1, and AM-RES-RL-BAT-2), and plant Covered Species (AM-DFA-PLANT-1 through AM-DFA-PLANT-3, AM-RES-BLM-PLANT-1, and AM-RES-RL-PLANT-1 through AM-RES-RL-PLANT-3). Furthermore, soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) CMAs would be implemented that would help avoid and minimize these effects and compensation CMAs would offset the effect (COMP-1 and COMP-2).

Dunes

Application of the CMAs would require avoidance of dune communities to the maximum extent feasible in DFAs so there would be no impacts to dunes under the GCP. In addition, the same CMAs that would be applied Plan-wide to reduce impacts to this general community and the plant and wildlife species it supports would also be applied under the GCP. This includes the implementation of dune avoidance and minimization CMAs (AM-DFA-DUNE-1 through AM-DFA-DUNE-3, and AM-RES-RL-DUNE-1 through AM-RES-RL-DUNE-3) as well as compensation CMAs that would offset any impacts determined to be unavoidable (COMP-1 and COMP-2).

Grasslands

Overall, approximately 5,000 acres (2.3%) of grasslands would be impacted under Alternative 2 under the GCP, which is about the same as the Plan-wide effects. Most impacts are from solar development in the West Mojave and Eastern Slope subarea, but would also occur from wind development and transmission in this subarea. In addition, impacts would occur in the Cadiz Valley and Chocolate Mountains, Mojave and Silurian Valley, and Pinto Lucerne Valley and Eastern Slopes subareas. The same CMAs that would be applied Plan-wide to reduce impacts to this general community and the plant and wildlife species it supports would also be applied under the GCP. This includes CMAs that address breeding, nesting, or roosting species (AM-DFA-AG-2), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs would offset that effect (COMP-1 and COMP-2).

Riparian

Application of the CMAs would require avoidance of riparian communities to the maximum extent feasible in DFAs so there would be no impacts to riparian communities under the GCP. In addition, the same CMAs that would be applied Plan-wide to reduce impacts to this general community and the plant and wildlife species it supports would also be applied under the GCP. This includes CMAs for avoidance and minimization from riparian habitat and the Covered Species associated with riparian habitat (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9) as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

Wetlands

Overall, approximately 4,000 acres (1.3%) of wetlands would be impacted under Alternative 2 under the GCP, which is less than half of the Plan-wide effects. Impacts would be mostly from renewable energy development on open water at the Salton Sea in the Imperial Borrego Valley subarea. The same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied under the GCP, including avoidance of Arid West freshwater emergent marsh and Californian warm temperate marsh/seep (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9) as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

Table IV.7-188
GCP Impact Analysis for Natural Communities – Alternative 2

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
California forest and woodland						
Californian broadleaf forest and woodland	61,000	20	0	0	0	20
Californian montane conifer forest	44,000	70	40	0	0	100
Chaparral and coastal scrub community (Cismontane scrub)						
Californian mesic chaparral	3,000	0	0	0	0	0
Californian pre-montane chaparral	1,000	0	0	0	0	0
Californian xeric chaparral	19,000	0	0	0	10	10
Central and south coastal California seral scrub	1,000	10	0	0	0	20

Table IV.7-188
GCP Impact Analysis for Natural Communities – Alternative 2

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Central and South Coastal Californian coastal sage scrub	42,000	700	200	0	100	1,000
Western Mojave and Western Sonoran Desert borderland chaparral	15,000	20	20	0	40	70
Desert conifer woodlands						
Great Basin Pinyon - Juniper Woodland	104,000	500	100	0	100	800
Desert outcrop and badlands						
North American warm desert bedrock cliff and outcrop	220,000	500	100	100	500	1,000
Desert Scrub						
Arizonan upland Sonoran desert scrub	8,000	0	0	0	0	0
Intermontane deep or well-drained soil scrub	24,000	200	40	0	50	300
Intermontane seral shrubland	68,000	2,000	200	0	100	2,000
Inter-Mountain Dry Shrubland and Grassland	152,000	700	300	0	200	1,000
Intermountain Mountain Big Sagebrush Shrubland and steppe	48,000	10	0	0	0	20
Lower Bajada and Fan Mojavean - Sonoran desert scrub	2,254,000	20,000	4,000	600	5,000	30,000
Mojave and Great Basin upper bajada and toeslope	228,000	2,000	500	0	300	3,000
Shadscale - saltbush cool semi-desert scrub	157,000	1,000	200	200	400	2,000
Southern Great Basin semi-desert grassland	70	0	0	0	0	0

Table IV.7-188
GCP Impact Analysis for Natural Communities – Alternative 2

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Dunes						
North American warm desert dunes and sand flats	34,000	0	0	0	0	0
Grassland						
California Annual and Perennial Grassland	196,000	4,000	400	0	300	4,000
California annual forb/grass vegetation	7,000	200	20	0	0	200
Riparian						
Madrean Warm Semi-Desert Wash Woodland/Scrub	96,000	0	0	0	0	0
Mojavean semi-desert wash scrub	17,000	0	0	0	0	0
Riparian	600	0	0	0	0	0
Sonoran-Coloradan semi-desert wash woodland/scrub	34,000	0	0	0	0	0
Southwestern North American riparian evergreen and deciduous woodland	6,000	0	0	0	0	0
Southwestern North American riparian/wash scrub	47,000	0	0	0	0	0
Wetland						
Arid West freshwater emergent marsh	4,000	0	0	0	0	0
Californian warm temperate marsh/seep	400	0	0	0	0	0
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	36,000	200	60	0	100	400
Open Water	114,000	1,000	10	600	900	3,000
Playa	52,000	0	0	0	10	10

Table IV.7-188
GCP Impact Analysis for Natural Communities – Alternative 2

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Southwestern North American salt basin and high marsh	112,000	700	60	0	100	900
Wetland	8,000	50	0	0	20	70
Other Land Cover – Developed and Disturbed Areas						
Agriculture	693,000	27,000	800	8,000	9,000	45,000
Developed and Disturbed Areas	399,000	200	10	40	1,000	2,000
Not Mapped	4,000	10	10	0	10	30
Rural	110,000	900	100	300	800	2,000
Total	**5,420,000**	**62,000**	**7,000**	**10,000**	**20,000**	**100,000**

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
[2] Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Rare natural community alliances could be impacted under Alternative 2 on nonfederal lands, including impacts to Joshua tree woodland. CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection that would help avoid and minimize these effects on rare natural communities. Additionally, AM-DFA-ONC-1 and -2 would require inventorying and preserving or transplanting cactus, yuccas, and succulents. While the compensation CMAs would offset the lost habitat acreage of these impacts, the compensation CMAs do not specifically require the replacement of or mitigation for specific rare natural community alliances. After application of the CMAs, impacts to rare natural communities from Alternative 2 would be adverse and would require mitigation.

Impact BR-2: Siting, construction, decommissioning, and operational activities would result in adverse effects to jurisdictional waters and wetlands.

Siting, construction, decommissioning, and operations of Covered Activities have the potential to result in adverse effects to federal or state jurisdictional waters and wetlands.

In the Plan Area, jurisdictional waters and wetlands would likely include the riparian and wetland communities analyzed under Impact BR-1 and may also include other features including playas, seeps/springs, major rivers, and ephemeral drainage networks.

All Covered Activities would be required to comply with existing, applicable federal and state laws and regulations related to jurisdictional waters and wetlands. Additionally, all impacts to riparian communities would be avoided under Alternative 2 through application of the riparian CMAs including riparian setbacks. All impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep wetlands, except those impacts determined to be unavoidable, would be avoided under Alternative 2 through application of the wetland CMAs, including wetland setbacks (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). Approximately 4,000 acres of other wetland communities would be impacted under Alternative 2. See the analysis for the loss of native vegetation provided under BR-1 for a discussion of these potential impacts. All or a portion of the estimated wetland impacts could result in adverse effects to jurisdictional waters and wetlands without compensation. Compensation CMAs would offset any impacts determined to be unavoidable.

Additionally, playas, seeps/springs, major rivers, and ephemeral drainages are waters and wetland features that provide hydrological functions and may be determined to be jurisdictional waters and wetlands. Adverse effects to these features would have the potential to impact jurisdictional waters and wetlands.

Playa

Less than 1% (400 acres) of playa would be impacted by Covered Activities under Alternative 2 within the GCP. About half of the impacts would be associated with solar (200 acres), with 40 acres of wind impacts, and 200 acres of transmission impacts. Ecoregion subareas of potential impacts to playas include the Cadiz Valley and Chocolate Mountains, Owens River Valley, Pinto Lucerne Valley and Eastern Slopes, Providence and Bullion Mountains, and West Mojave and Eastern Slopes subareas.

Avoidance of impacts to wetland communities including playas would benefit Covered Species that utilize these communities. In addition, application of species-specific CMAs would help avoid and minimize impacts to species associated with playas (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). CMAs would also require compliance with all applicable laws and regulations pertaining to wetlands and waters, including playas (AM-PW-9 and AM-LL-2). Compensation CMAs would offset impacts to these features (COMP-1 and COMP-2).

Seep/Spring

Seeps occur within DFAs and transmission corridors and potential impacts to seep/spring have the potential to occur under Alternative 2 within the GCP in the following ecoregion subareas: Imperial Borrego Valley, Kingston and Funeral Mountains, Mojave and Silurian Valley, Owens River Valley, Pinto Lucerne Valley and Eastern Slopes, and West Mojave and Eastern Slopes. Impacts to seeps and springs would be adverse absent implementation of avoidance measures. Impacts to seep/spring locations and associated Covered Species and hydrological functions would be avoided through adherence to avoidance and minimization CMAs, including habitat assessments and avoidance of seeps with 0.25 mile setbacks (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). Compensation CMAs would offset any impacts determined to be unavoidable (COMP-1 and COMP-2).

Major Rivers

Major rivers occur within DFAs and transmission corridors and potential impacts to major rivers under Alternative 2 within the GCP have the potential to occur to both the Colorado and Mojave Rivers, and there could be indirect effects associated with modification of hydrology resulting from development. Impacts to major rivers would be adverse absent implementation of avoidance measures. Impacts to major rivers and associated Covered Species and hydrological functions would be avoided through adherence to avoidance and minimization CMAs. Riparian CMAs would require avoidance of these features with setbacks (AM-DFA-RIPWET-1).

Ephemeral Drainages

Ephemeral drainages occur throughout the Plan Area, and some of these features could be determined to state or federal jurisdictional waters. Impacts to ephemeral drainages would likely occur from Covered Activities. Application of riparian avoidance CMAs (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9) would avoid and minimize impacts to a portion of the ephemeral drainages within DFAs. Additionally, all Covered Activities would be required to comply with existing, applicable federal and state laws and regulations related to jurisdictional waters and wetlands.

Impact BR-3: Siting, construction, decommissioning, and operational activities would result in degradation of vegetation.

Siting, construction, and operational Covered Activities would result in the degradation of vegetation through the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants. The degree to which these factors contribute to the degradation of vegetation corresponds to the distribution of Covered Activities within the GCP that would result in dust, fire, and

introduction of invasive plants or that would use dust suppressants and implement fire management. The propensity for vegetation to be at risk of degradation was determined by the overlap between natural community models and the likely distribution of Covered Activities across subareas in the GCP.

Based on the planned renewable energy capacity, the greatest amount of terrestrial operational impacts within the GCP would occur in the Imperial Borrego Valley and West Mojave and Eastern Slopes subareas, as shown in Table IV.7-189. As a result, these subareas would have the greatest potential to degrade vegetation as a result in the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants.

Table IV.7-189
GCP Terrestrial Operational Impacts – Alternative 2

Ecoregion Subarea	Solar Impact (acres)[1]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Cadiz Valley and Chocolate Mountains	6,000	2,000	-	4,000	12,000
Imperial Borrego Valley	24,000	2,000	10,000	11,000	47,000
Kingston and Funeral Mountains	500	-	-	60	560
Mojave and Silurian Valley	1,000	-	-	500	1,500
Owens River Valley	700	900	-	300	1,900
Panamint Death Valley	200	-	-	-	200
Pinto Lucerne Valley and Eastern Slopes	6,000	10,000	-	4,000	20,000
Piute Valley and Sacramento Mountains	-	-	-	-	-
Providence and Bullion Mountains	500	500	-	300	1,300
West Mojave and Eastern Slopes	23,000	15,000	-	1,000	39,000
Total	**62,000**	**31,000**	**10,000**	**20,000**	**123,000**

[1] Solar impacts include ground-mounted distributed generation.

Notes: Terrestrial operational impacts collectively refers to vegetation degradation impacts (BR-3) from dust, dust suppressants, fire, fire management, and invasive plants and wildlife impacts (BR-4) from creation of noise, predator avoidance behavior, lighting and glare. For the purposes of analysis, terrestrial operational impacts were quantified using the project area extent for solar and geothermal, using 25% of the project area for wind, and the right-of-way area for transmission. Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation, short-term and long-term wind (excluding project area impacts), geothermal project area, and transmission impacts. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000;

values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Dust and Dust Suppressants

Natural communities, especially those with Mojave desert shrubs, are susceptible to vegetation degradation as a result of dust deposition. Impacts to these natural communities would mostly occur in the West Mojave and Eastern Slope subarea. Plant Covered Species, that could also experience vegetation degradation from dust, would mainly be impacted by Covered Activities in the West Mojave and Eastern Slopes subarea and to a lesser extent in the Pinto Lucerne Valley and Eastern Slopes subarea, which contain most of the impacts to plant Covered Species habitat within the GCP. Considering the distribution of Covered Activities that would cause dust as well as the sensitive natural communities and plant Covered Species the West Mojave and Eastern Slopes subarea would experience the greatest magnitude of vegetation degradation resulting from dust.

The application of dust suppressants is a common management practice, a Covered Activity under the Plan, and has been shown to effectively reduce dust. Dust-related degradation of vegetation would be further minimized within the GCP through the incorporation of avoidance and minimization CMAs. The Plan-wide avoidance and minimization CMAs would generally identify vegetation in the project area (AM-PW-1), utilize standard practices to minimize the amount of exposed soils (AM-PW-14) and reduce dust caused by soil erosion (AM-PW-10). Additionally, Alternative 2 would implement CMAs that would identify and protect or salvage specific plant species, reducing their exposure to dust. Setbacks and suitable habitat impact caps would also be implemented for plant Covered Species in DFAs and in the reserve design envelope (AM-DFA-PLANT-1 through AM-DFA-PLANT-3).

Riparian and wetland natural communities would be susceptible to the adverse effects of dust suppressants including chemical and physical changes, altered hydrological function, and increased pollutant loads in surface water. The Imperial Borrego Valley subarea would experience most of the impacts to riparian and wetland natural communities in the GCP, which corresponds to the potential greatest magnitude of vegetation degradation from adverse dust suppressant effects. Plant Covered Species, which would also be affected by the use of dust suppressants would mostly be impacted by Covered Activities in the West Mojave and Eastern Slopes subarea.

Avoidance and minimization CMAs implemented as part of Alternative 2, including AM-PW-9 and AM-PW-10, would utilize standard practices to reduce erosion and runoff of dust suppressant into sensitive vegetation. Setbacks and avoidance requirements for all riparian natural communities and some wetland natural communities that would be implemented

as part of the CMAs would minimize potential adverse effects of dust suppressants on these communities (AM-DFA-RIPWET-1).

Fire and Fire Management

Anthropogenic ignitions of fires that could result from operational and maintenance activities associated with renewable energy facilities could destroy the natural communities found in the Plan Area. Due to their slower speed of recovery, desert scrub natural communities are more susceptible to natural community conversion from fires. Within the GCP approximately most of the impacts to desert scrubs throughout the Plan Area would occur within the West Mojave and Eastern Slopes and the Pinto Lucerne Valley and Eastern Slopes subareas under Alternative 2.

Under Alternative 2, construction and maintenance of fire breaks and other fire management techniques would impact California forest and woodlands, chaparral natural communities, and grassland natural communities within the GCP. In combination these impacts to woodlands, chaparral, and grasslands, which correspond to the amount of potential vegetation degradation resulting from vegetation removal during fire management, would predominantly occur in the West Mojave and Eastern Slopes subarea and to a lesser extent in the Pinto Lucerne Valley and Eastern slopes subarea. Avoidance and minimization CMAs would be implemented to minimize the potential adverse effects of fire and fire management, including AM-PW-12 that would require projects to minimize the amount of vegetation clearing and fuel modification, under Alternative 2.

Invasive Plants

Invasive plants can result in vegetation degradation by increasing the fuel load and the frequency of fires in plant communities as well hindering the growth or establishment of other plant species. Overall, the natural communities and plant Covered Species in the GCP are generally at risk of adverse effects from the introduction of invasive plants. The most vegetation degradation caused by the introduction of invasive plants would occur in the West Mojave and Eastern Slopes and Pinto Lucerne Valley and Eastern Slopes subareas where most of the impacts to natural communities within the GCP would be located. Plant Covered Species in the GCP would also experience potential vegetation degradation as a result of Covered Activities with most of the impacts occurring in the Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas.

Avoidance and minimization CMAs would be implemented to reduce vegetation degradation from invasive plants under Alternative 2, including AM-PW-7 that would ensure the timely restoration of temporarily disturbed areas that could otherwise promote invasive plants. Additional CMAs would use standard practices to control weeds and

invasive plants (AM-PW-11) and require the responsible use of herbicides to minimize potential vegetation degradation (AM-PW-15) for all Covered Activities.

Impact BR-4: Siting, construction, decommissioning, and operational activities would result in loss of listed and sensitive plants; disturbance, injury, and mortality of listed and sensitive wildlife; and habitat for listed and sensitive plants and wildlife.

Impact BR-4 described at the Plan-wide level provides an impact analysis for Covered Species habitat by ecoregion subarea, specific Covered Species impact analyses, an indirect and terrestrial operational impact analysis for Covered Species, and a Non-Covered Species impact analysis. The following provides an impact analysis for Covered Species on nonfederal GCP lands. Most of the impacts to plant and wildlife species and their habitat under Alternative 2 would occur in the Imperial Borrego Valley and West Mojave and Eastern Slopes subareas.

Covered Species Habitat Impact Analysis by Ecoregion Subarea

West Mojave and Eastern Slopes Ecoregion Subarea

Renewable energy development in the West Mojave and Eastern Slopes subarea would mostly be from solar development, but would also include impacts from wind and transmission development. Typical impacts from these Covered Activities on plant and wildlife species and their habitat is described in Section IV.7.2. This subarea provides suitable habitat for amphibians and reptiles that would be impacted, including Agassiz's desert tortoise, Mojave fringe-toed lizard, and Tehachapi slender salamander. The siting of the DFAs under the GCP largely avoid habitat for Mojave fringe-toed lizard and Tehachapi slender salamander, and CMAs requiring avoidance of and setbacks from dune habitat (AM-DFA-DUNE-1 through AM-DFA-DUNE-3) would further avoid and minimize the impacts on these species to less than the acreage reported in Table IV.7-190. Compensation CMAs would offset habitat loss for these species.

There are impacts to suitable habitat for several bird Covered Species in the West Mojave and Eastern Slopes subarea, including Bendire's thrasher, burrowing owl, California condor, golden eagle, least Bell's vireo, mountain plover, southwestern willow flycatcher, Swainson's hawk, and tricolored blackbird that would be impacted. CMAs require avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further avoid and minimize the impacts on least Bell's vireo, southwestern willow flycatcher, and tricolored blackbird to less than the acreage reported in Table IV.7-190. Additionally, the CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs (AM-DFA-AG-2). Compensation CMAs would offset habitat loss for these species.

Suitable habitat for bighorn sheep, Mohave ground squirrel, pallid bat, and Townsend's big-eared bat would be impacted in this subarea. Desert kit fox, a Planning Species, would also be impacted. The siting of the DFAs under the GCP largely avoid habitat for bighorn sheep. The CMAs require avoidance of and setbacks from riparian and wetland habitat (AM-DFA-RIPWET-1) that would further reduce the impacts on these habitats used by Mohave ground squirrel, pallid bat, and Townsend's big-eared bat to less than the acreage reported in Table IV.7-190. Compensation CMAs would offset habitat loss for these species.

Suitable habitat for the following plant species would be impacted in the West Mojave and Eastern Slopes subarea: alkali mariposa-lily, Bakersfield cactus, Barstow woolly sunflower, desert cymopterus, Mojave monkeyflower, and Mojave tarplant. Although modeled suitable habitat for these species may be impacted by Covered Activities in this subarea, the CMAs require surveys for plant Covered Species for all Covered Activities, and the CMAs requiring avoidance of and setbacks from occupied habitat (AM-DFA-PLANT-1 through AM-DFA-PLANT-3) would further reduce the impacts on these species to less than the acreage reported in Table IV.7-190. Compensation CMAs would offset habitat loss for these species.

Imperial Borrego Valley Ecoregion Subarea

Renewable energy development within the Imperial Borrego Valley subarea would be primarily from solar energy development, but would also include impacts from geothermal, wind, and transmission development. The Imperial Borrego Valley subarea provides suitable habitat for Agassiz's desert tortoise and flat-tailed horned lizard that would be impacted. The siting of the DFAs under the GCP largely avoid habitat for flat-tailed horned lizard, and CMAs requiring avoidance of and setbacks from dune habitat (AM-DFA-DUNE-1 through AM-DFA-DUNE-3) would further avoid and minimize the impacts on this species to less than the acreage reported in Table IV.7-190.

Impacts would occur to suitable habitat for the following covered bird species in this subarea: Bendire's thrasher, burrowing owl, California black rail, Gila woodpecker, golden eagle, greater sandhill crane, least Bell's vireo, mountain plover, southwestern willow flycatcher, Swainson's hawk, tricolored blackbird, and Yuma clapper rail. CMAs requiring avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further avoid and minimize the impacts on southwestern willow flycatcher, tricolored blackbird, least Bell's vireo, California black rail, and Yuma clapper rail to less than the acreage reported in Table IV.7-190. Additionally, the CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs (AM-DFA-AG-2).

Impacts to suitable habitat for desert pupfish, the only fish species with suitable habitat in this subarea, would be approximately 100 acres. The avoidance and setback provisions for managed wetlands and agricultural drains (AM-DFA-RIPWET-1) would conserve wetland

and riparian features within the agricultural matrix and provide conservation benefits to desert pupfish.

Only minimal impacts (10 acres) would occur to each bighorn sheep mountain and intermountain habitat in this subarea. Impacts to suitable habitat for other mammal Covered Species would occur for California leaf-nosed bat, pallid bat, and Townsend's big-eared bat. Suitable habitat for Planning Species desert kit fox and burro deer would also be impacted. The siting of the DFAs under the GCP largely avoid habitat for bighorn sheep. The CMAs require avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further reduce the impacts on the habitats used by California leaf-nosed bat, pallid bat, and Townsend's big-eared bat to less than the acreage reported in Table IV.7-190.

Table IV.7-190
GCP Impact Analysis for Covered Species Habitat – Alternative 2

Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Amphibian/Reptile						
Agassiz's desert tortoise	2,248,000	19,000	4,000	-	4,000	27,000
Flat-tailed horned lizard	310,000	3,000	40	1,000	2,000	6,000
Mojave fringe-toed lizard	168,000	2,000	100	-	1,000	3,000
Tehachapi slender salamander	41,000	70	10	-	-	80
Bird						
Bendire's thrasher	405,000	3,000	900	400	2,000	6,000
Burrowing owl	3,244,000	54,000	6,000	9,000	16,000	84,000
California black rail	127,000	1,000	20	500	800	3,000
California condor	997,000	11,000	2,000	-	600	14,000
Gila woodpecker	56,000	400	10	200	300	800
Golden eagle–foraging	1,498,000	6,000	2,000	20	2,000	10,000
Golden eagle–nesting	676,000	900	300	-	600	2,000
Greater sandhill crane	601,000	24,000	600	8,000	9,000	42,000
Least Bell's vireo	104,000	100	50	10	100	300
Mountain plover	811,000	30,000	1,000	8,000	9,000	48,000
Southwestern willow flycatcher	258,000	3,000	100	1,000	1,000	5,000
Swainson's hawk	1,339,000	24,000	2,000	5,000	5,000	35,000
Tricolored blackbird	257,000	5,000	400	20	200	6,000

Table IV.7-190
GCP Impact Analysis for Covered Species Habitat – Alternative 2

Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Western yellow-billed cuckoo	111,000	100	10	-	70	200
Yuma clapper rail	31,000	20	-	10	10	30
Fish						
Desert pupfish	7,000	60	-	30	50	100
Mohave tui chub	100	-	-	-	-	-
Owens pupfish	13,000	20	10	-	10	30
Owens tui chub	13,000	20	10	-	10	30
Mammal						
Bighorn sheep – inter-mountain habitat	465,000	600	100	-	600	1,000
Bighorn sheep – mountain habitat	807,000	2,000	1,000	-	2,000	5,000
California leaf-nosed bat	979,000	3,000	300	400	3,000	7,000
Mohave ground squirrel	1,319,000	13,000	2,000	-	2,000	17,000
Pallid bat	3,775,000	28,000	5,000	900	8,000	43,000
Townsend's big-eared bat	3,510,000	26,000	5,000	1,000	8,000	40,000
Plant						
Alkali mariposa-lily	117,000	2,000	200	-	90	2,000
Bakersfield cactus	200,000	2,000	500	-	60	3,000
Barstow woolly sunflower	82,000	400	60	-	10	500
Desert cymopterus	137,000	500	50	-	10	600
Little San Bernardino Mountains linanthus	130,000	800	400	-	200	1,000
Mojave monkeyflower	41,000	200	60	-	100	400
Mojave tarplant	129,000	400	30	-	40	500
Owens Valley checkerbloom	92,000	200	70	-	100	400
Parish's daisy	72,000	700	500	-	500	2,000
Triple-ribbed milk-vetch	3,000	-	-	-	-	-

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

[2] Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal

facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Specific Covered Species Impact Analyses

For Agassiz's desert tortoise, desert tortoise important areas were identified that include tortoise conservation areas (TCAs), desert tortoise linkages, and desert tortoise high priority habitat (see desert tortoise BGOs in Appendix C). Table IV.7-191 provides an impact analysis for these desert tortoise important areas in the GCP area, organized by desert tortoise Recovery Units: Colorado Desert, Eastern Mojave, and Western Mojave. Within the Colorado Desert Recovery Unit, approximately 900 acres of TCAs, linkage habitat, and high priority habitat would be impacted under Alternative 2. Within the Eastern Mojave Recovery Unit, approximately 400 acres of TCAs and linkage habitat would be impacted under Alternative 2. Within the Western Mojave Recovery Unit, approximately 9,000 acres of TCAs and linkage habitat would be impacted under Alternative 2.

Under Alternative 2, the CMAs would not prohibit the development of Covered Activities in the TCAs (AM-DFA-ICS-5 (Alternative 2)). Additionally under Alternative 2, the CMAs would require that impacts to desert tortoise linkage only limit impact to the minimum functionality within each linkage (AM-DFA-ICS-6 (Alternative 2)). Compensation CMAs would be required impacts to desert tortoise important areas.

As described in the Plan-wide impact analysis of Alternative 2 under Impact BR-4, this alternative would result in adverse impacts to desert tortoise. The adverse impacts to desert tortoise under Alternative 2 are primarily a result of where renewable energy development would be allowed under this alternative (i.e., the DFA locations). Under Alternative 2, renewable energy development in DFAs would be covered in numerous locations considered important for desert tortoise conservation, including but not limited to Desert Tortoise Research Natural Area and West Rand Mountains ACEC, the Fremont-Kramer critical habitat unit, the Ord-Rodman critical habitat unit, habitat linkages around Ord-Rodman, and habitat linkage areas in the Silurian Valley. Impacts to the Desert Tortoise Research Natural Area would result in the loss of over 30 years of science and research on desert tortoise that have been and continue to be conducted at this location, which would be considered an irreplaceable impact. In addition to the acreage of lost desert tortoise habitat, impacts in linkages have the potential to reduce or eliminate the linkage function at that geographic location, which cannot be replaced or compensated. The lost linkage function in these locations has the potential to isolate desert tortoise populations, which over time would lead to reduced individual fitness related to inbreeding, reduced genetic diversity, reduced resilience of subpopulations to threats,

increased risk of extirpation within subpopulations, and a substantially reduced ability of the desert tortoise to recover in the Plan Area.

Table IV.7-191
GCP Impact Analysis for Desert Tortoise Important Areas – Alternative 2

Recovery Unit	Desert Tortoise Important Areas	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Colorado Desert	High Priority Habitat	31,000	-	-	-	10	10
	Linkage	63,000	30	30	-	-	60
	TCA	269,000	100	40	-	700	900
Colorado Desert Total		*363,000*	*100*	*70*	-	*700*	*900*
Eastern Mojave	Linkage	56,000	400	-	-	10	400
	TCA	66,000	-	-	-	40	40
Eastern Mojave Total		*122,000*	*400*	-	-	*50*	*400*
Western Mojave	Linkage	407,000	5,000	1,000	-	2,000	8,000
	TCA	392,000	600	90	-	300	1,000
Western Mojave Total		*798,000*	*6,000*	*2,000*	-	*2,000*	*9,000*
Total		**1,283,000**	**6,000**	**2,000**	**-**	**3,000**	**10,000**

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

Notes: Total reported acres include solar and ground-mounted distributed generation (GMDG), wind project area, geothermal, and transmission impacts. Short-term and long-term ground disturbance from wind would be within the wind project area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For golden eagle, a territory-based analysis was conducted (see methods and results in the Chapter IV.7 portion of Appendix R2). Using the golden eagle nest database, golden eagle territories were identified and individually buffered by 1 mile (representing breeding areas around known nests) and 4 miles (representing use areas around known nests). A total of 157 territories occur wholly or partially within the GCP area. Under Alternative 2, 33 territories have DFAs or transmission corridors within 1 mile of a nest. Implementation of the CMAs for golden eagles (AM-DFA-ICS-2) would prohibit siting or construction of Covered Activities within 1 mile of an active golden eagle nest; therefore, impacts within 1 mile of these golden eagle territories would be avoided. Under Alternative 2, 74 territories have DFAs or transmission corridors within 4 miles of nest, and the use area of these territories could be impacted through harassment and reduced foraging opportunities by Covered Activities depending of the siting of specific projects. The CMAs for golden eagles

(Section II.3.1.2.5) and the approach to golden eagles (see Appendix H) describes how the impact to golden eagles would be avoided, minimized, and compensated. Based on the 2013 analysis, no more than 15 golden eagles per year in 2014 would be allowed to be taken within the Plan Area, which would be reassessed annually.

For bighorn sheep, bighorn sheep mountain habitat and intermountain (linkage) habitat have been identified in the Plan Area. Under Alternative 2 on nonfederal land, approximately 5,201 acres of mountain habitat and 1,263 acres of intermountain habitat would be impacted. Alternative 2 identified DFAs that avoid impacts to bighorn sheep mountain and intermountain habitat except in the Pinto Lucerne Valley and Eastern Slopes subarea, eastern Mojave and Silurian Valley subarea, and eastern Imperial Borrego Valley subarea, Avoidance, minimization, and compensation CMAs have been developed to offset the loss of habitat for bighorn sheep.

For Mohave ground squirrel, Mohave ground squirrel important areas were identified that include key population centers, linkages, expansion areas, and climate change extension areas (see Mohave ground squirrel BGOs in Appendix C). Table IV.7-192 provides an impact analysis for these Mohave ground squirrel important areas in the GCP area. A total of approximately 900 acres of impact would occur in climate change extension areas under Alternative 2. A total of approximately 900 acres of impact to linkage and approximately 1,000 acres of impact to expansion areas would occur under Alternative 2. The CMAs would prohibit impacts that affect the viability of linkages (AM-DFA-ICS-36 through AM-DFA-ICS-43). Compensation CMAs would be required for impacts to Mohave ground squirrel important areas.

As described in the Plan-wide impact analysis of Alternative 2 under Impact BR-4, this alternative would result in adverse impacts to Mohave ground squirrel. The adverse impacts to Mohave ground squirrel under Alternative 2 are primarily a result of where renewable energy development would be allowed under this alternative (i.e., the DFA locations). Under Alternative 2, renewable energy development in DFAs would be covered in numerous locations considered important for Mohave ground squirrel conservation, including but not limited key population centers and linkages in West Mojave – 1, West Mojave – 2, and West Mojave – 3 ecoregion subunits. In addition to the acreage of lost Mohave ground squirrel habitat, impacts in linkages have the potential to reduce or eliminate the linkage function at that geographic location, which cannot be replaced or compensated. The lost linkage function in these locations has the potential to isolate key population centers for Mohave ground squirrel, which over time would lead to reduced individual fitness related to inbreeding, reduced genetic diversity, reduced resilience of subpopulations to threats, increased risk of extirpation within subpopulations, and a substantially reduced ability of Mohave ground squirrel to recover in the Plan Area.

Table IV.7-192
GCP Impact Analysis for Mohave Ground Squirrel Important Areas – Alternative 2

Mohave Ground Squirrel Important Area Type	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Key Population Center	193,000	1,000	100	-	100	1,000
Linkage	103,000	800	70	-	40	900
Expansion Area	258,000	1,000	100	-	70	1,000
Climate Change Extension	131,000	600	200	-	200	900
Total	**684,000**	**4,000**	**500**	**-**	**400**	**5,000**

1 Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

2 Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres include solar and ground-mounted distributed generation, short-term and long-term wind impacts, geothermal project area, and transmission impacts. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Within the Plan Area, critical habitat has been designated by the USFWS for the following Covered Species: desert tortoise, southwestern willow flycatcher, desert pupfish, and Parish's daisy. For desert tortoise, approximately 1,000 acres of impact designated critical habitat would result from the development of Covered Activities on nonfederal lands under Alternative 2 located in the Chuckwalla, Fremont-Kramer, Ord-Rodman, and Superior-Cronese critical habitat units. Under Alternative 2, no impacts to critical habitat designated for southwestern willow flycatcher, desert pupfish, or Parish's daisy would occur from the development of Covered Activities on nonfederal lands.

Indirect and Terrestrial Operational Impact Analysis

Siting, construction, and operational Covered Activities could result in the potential disturbance, injury, and mortality of listed and sensitive wildlife from noise, predator avoidance behavior, as well as light and glare. The degree to which these factors contribute to the disturbance of sensitive wildlife corresponds to the distribution of Covered Activities within the GCP that would result in noise, predator avoidance behavior, or light and glare.

Based on the planned renewable energy capacity in the GCP, most of terrestrial operational impacts would occur in the West Mojave and Eastern Slopes and the Pinto Lucerne Valley and Eastern Slopes subareas respectively, as shown in Table IV.7-189. As a result, these subareas would have the greatest potential to disturbance of sensitive wildlife from noise, predator avoidance behavior, as well as light and glare.

Noise

Noise can cause physical damage to wildlife as well as behavioral changes in habitat use, activity patterns, reproduction, and foraging. Nesting birds are expected to be particularly sensitive to noise effects. The largest amount of impacts to bird Covered Species habitat in the GCP would be located in the West Mojave and Eastern Slopes and Imperial Borrego Valley subareas. Smaller mammals, such as the Mohave ground squirrel, and reptiles, such the Mojave fringe-toed lizard and flat-tailed horned lizard, could experience increased predation from noise hindering their ability to detect predators. The combined impacts in the GCP to the modeled habitat for these Covered Species would mostly occur in the West Mojave and Eastern Slopes subarea, and to a lesser extent in the Imperial Borrego Valley subarea. As such, the disturbance of wildlife from noise would predominantly occur in the West Mojave and Eastern Slopes and Imperial Borrego Valley subareas.

Implementation of avoidance and minimization CMAs under Alternative 2 would minimize the disturbance and injury of wildlife from noise-related effects. The CMA AM-PW-13 would reduce noise generated from Covered Activities using standard practices while other CMAs that would avoid and setback Covered Activities from noise-sensitive wildlife including seasonal setbacks for nesting birds; setbacks from riparian and wetland habitat benefitting bids, amphibians, and small mammals; and avoidance of Mohave ground squirrel's during operations (AM-DFA-RIPWET-1, AM-DFA-RIPWET-5, and AM-DFA-ICS-36).

Predator Avoidance Behavior

The effects of predator avoidance behavior including wildlife experiencing behavioral changes due to human activities during siting, construction, and operations. Although different wildlife species may have varying sensitivities to predator avoidance behavior and may experiences different magnitudes of responses to Covered Activities, Covered Activities are expected to generally result in predator avoidance and other behavioral changes in most wildlife species that are spread throughout the GCP. Therefore, the most disturbance of wildlife from predator avoidance behavior would occur in the West Mojave and Eastern Slopes and Imperial Borrego Valley subareas, where most of the terrestrial operational impacts within the GCP are anticipated.

Avoidance and minimization CMAs for siting Covered Activities away from sensitive wildlife habitat would be implemented for riparian and wetland habitat, wildlife species that inhabit agricultural lands, and for particular species such as the Mohave ground squirrel (AM-DFA-RIPWET-1, AM-DFA-RIPWET-5, AM-DFA-AG-2, and AM-DFA-ICS-36). Under Alternative 2, additional CMAs would inform workers of actions that could potentially affect wildlife behavior and restrict activities that could disturb wildlife and their access to water and foraging habitat (AM-PW-5, AM-PW-13, and AM-RES-RL-DUNE-2). Seasonal restrictions would also be implemented for recreational activities that might

affect Bighorn sheep in the reserve design envelope (AM-RES-BLM-ICS-11). The potential disturbance of wildlife from predator avoidance behavior caused by siting, construction, and operational Covered Activities in the GCP would be minimized by these measures.

Light and Glare

Exposure of wildlife to light and glare can alter wildlife behavior including foraging, migration, and breeding. Solar projects are expected to have greater effects on wildlife compared to other renewable energy technologies because they would produce increased levels of glare due to the large amount of reflective panel or heliostat surfaces. Potential adverse effects associated with light and glare from solar projects, including solar flux and bird collisions from the lake effect are analyzed in BR-9. Most of the terrestrial operational impacts in the GCP resulting from development of all technology types of renewable energy would occur in the West Mojave and Eastern Slopes and Imperial Borrego Valley subareas. Similarly, the Imperial Borrego Valley and West Mojave and Eastern Slopes subareas would experience most of terrestrial operational impacts from solar projects in the GCP. Therefore, these subareas would have the greatest potential to disturbance of sensitive wildlife from noise, predator avoidance behavior, as well as light and glare.

Bats and other diurnal predators may exploit night lighting that increases prey detectability, but would also be attracted to areas of greater development that increase potential hazards such as collision. Impacts to habitat for bats would as a result of Covered Activities in the GCP would mainly be located in the West Mojave and Eastern Slopes and the Pinto Lucerne Valley and Eastern Slopes subareas. Migratory birds that fly during the night may be affected by aviation safety lighting. For bird Covered Species the West Mojave and Eastern Slopes and Imperial Borrego Valley are the subareas primarily affected, containing most of the impacts to bird Covered Species habitat in the GCP. As such, wildlife disturbance is anticipated to occur primarily in the West Mojave and Eastern Slopes subarea and to a lesser extent in the Pinto Lucerne Valley and Eastern Slopes and the Imperial Borrego Valley subareas.

Alternative 2 would implement avoidance and minimization CMAs within the GCP specifically intended to reduce effects of lighting and glare including AM-PW-14, which would implement standard practices for shielding and reducing the use of lights, as well as AM-DFA-RIPWET-4, which specifically restricts lighting within one mile of riparian or wetland vegetation. Other CMAs applicable in the GCP would implement setbacks for riparian and wetland habitat, wildlife species that inhabit agricultural lands, and for smaller mammals, which would minimize their exposure to light and glare from Covered Activities (AM-DFA-RIPWET-1, AM-DFA-RIPWET-5, and AM-DFA-AG-2).

Non-Covered Species

Potential impacts to Non-Covered Species on GCP Land were analyzed as described in Section IV.7.3.2.1. Table IV.7-193 provides an estimation of the impacts to natural communities associated with Non-Covered Species. While estimation of impacts to natural communities likely overestimates the potential impacts to Non-Covered Species habitats, it provides a general range of level of impact.

Impacts to the dune community, riparian communities, arid west freshwater emergent marsh, and Californian warm temperate marsh/seep would be avoided through implementation of CMAs, so impacts to potential habitat for each of these species is likely greater than would actually occur. For some species, impacts would be minimized through avoidance of the specific natural communities required for those species, e.g. dune- or cave-restricted invertebrates, or riparian-obligate bird species. The total impact to potential habitat across all technology types is less than 1%, with the exception of the desert scrub/chaparral communities at approximately 1.3%, grassland communities at approximately 2.3%, and within the agriculture/rural land cover areas at approximately 5.8%.

As additional analysis, Table IV.7-50 provides a cross-reference of natural communities shared between primary Covered and Non-Covered Species. There are a number of species-specific CMA's for Covered Species and natural communities that would be expected to also minimize and avoid impacts to the Non-Covered Species that may co-occur, e.g., the Non-Covered yellow-breasted chat often occurs within the same riparian habitat as the covered southwestern willow flycatcher, therefore, conservation measures implemented for southwestern willow flycatcher would often benefit the yellow-breasted chat. Although the modeled habitat for the Covered Species does not always directly overlap the range of Non-Covered Species requiring similar habitat, this method provides a general additional guide for determining impacts and accounting for conservation measures.

Critical habitat for the federally-listed Non-Covered Species would essentially be avoided across all renewable energy types.

The results of impacts on Non-Covered Species from the creation of noise, predator avoidance behavior, and light and glare would be similar to those described for the Covered Species.

Table IV.7-193
GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 2

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
California forest and woodland/ Desert conifer woodlands	Coast horned lizard, grey vireo, loggerhead shrike, yellow warbler, American badger, bighorn sheep, fringed myotis, hoary bat, long-eared myotis, pocketed free-tailed bat, spotted bat, Tehachapi pocket mouse, western mastiff bat, western small-footed myotis, Amargosa beardtongue, Charlotte's phacelia, creamy blazing star, Cushenbury buckwheat, Cushenbury milk-vetch, Cushenbury oxytheca, Kern buckwheat, Piute Mountains jewel-flower, purple-nerve cymopterus, San Bernardino Mountains dudleya, short-joint beavertail cactus, Spanish needle onion, Tracy's eriastrum, Cushenbury buckwheat	209,000	600	100	0	100	800	0.4%
Desert Scrub/ Chaparral Communities	Arroyo toad, banded gila monster, Coast horned lizard, Colorado Desert fringe-toed lizard, Couch's spadefoot, rosy boa, bald eagle, bank swallow, Crissal thrasher, Ferruginous hawk, gilded flicker, grey vireo, Le Conte's thrasher, loggerhead shrike, long-eared owl, Lucy's warbler, northern harrier, yellow warbler, American badger, Arizona myotis, big free-tailed bat, bighorn sheep, cave myotis, fringed myotis, hoary bat, long-eared myotis, Palm Springs pocket mouse, pocketed free-tailed bat, spotted bat, Tehachapi pocket	3,020,000	27,000	5,000	800	6,000	38,800	1.3%

Table IV.7-193
GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 2

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	mouse, western mastiff bat, western small-footed myotis, western yellow bat, yellow-eared pocket mouse, Yuma myotis, Algodones Dunes sunflower, Ash Meadows gum plant, Amargosa beardtongue, bare-stem larkspur, Charlotte's phacelia, Cima milk-vetch, Coachella Valley milk-vetch, creamy blazing star, Cushenbury buckwheat, Cushenbury milk-vetch, Cushenbury oxytheca, desert pincushion, Emory's crucifixion-thorn, flat-seeded spurge, forked buckwheat, Harwood's eriastrum, Harwood's milkvetch, Inyo County star-tulip, Kelso Creek monkeyflower, Kern buckwheat, Las Animas colubrina, Lane Mountain Milk-Vetch, Mojave Desert plum, Mojave milkweed, Munz's Cholla, nine-awned pappus grass, Orcutt's woody aster, Orocopia sage, Parish's club cholla, Pierson's milk-vetch, pink fairy-duster, Piute Mountains jewel-flower, purple-nerve cymopterus, Red Rock poppy, Red Rock tarplant, Robinson's monardella, Rusby's desert-mallow, sand food, Sodaville milk-vetch, short-joint beavertail cactus, Spanish needle onion, Thorne's buckwheat, Tracy's eriastrum, Utah							

Table IV.7-193
GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 2

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	beardtongue, white bear poppy, White-margined beardstongue, Wiggin's croton, Flat-seeded spurge, Parish's phacelia, Parish's alkali grass							
Dunes[3]/ Desert Outcrop and Badlands	Banded gila monster, barefoot gecko, Coast horned lizard, Colorado Desert fringe-toed lizard, Couch's spadefoot, rosy boa, bald eagle, bank swallow, Le Conte's thrasher, loggerhead shrike, long-eared owl, northern harrier, Amargosa vole, big free-tailed bat, bighorn sheep, cave myotis, bat, spotted bat, western mastiff bat, Yuma myotis, Algodones Dunes sunflower, Ash Meadows gum plant, Amargosa beardtongue, Amargosa niterwort, Charlotte's phacelia, Cima milk-vetch, Coachella Valley milk-vetch, creamy blazing star, desert pincushion, Emory's crucifixion-thorn, flat-seeded spurge, forked buckwheat, Harwood's eriastrum, Harwood's milkvetch, Inyo County star-tulip, Las Animas colubrina, Mojave Desert plum, Mojave milkweed, nine-awned pappus grass, Orcutt's woody aster, Orocopia sage, Palmer's jackass clover, Parish's club cholla, Pierson's milk-vetch, pink fairy-duster, purple-nerve cymopterus, Red Rock poppy, Red Rock tarplant, Robinson's monardella, Rusby's desert-mallow, sand food, Spanish needle	254,000	500	100	100	500	1,200	0.5%

Table IV.7-193
GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 2

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	onion, Thorne's buckwheat, Utah beardtongue, white bear poppy, Wiggin's croton, Palmer's jackass clover, white-margined beardtongue, flat-seeded spurge							
Grassland	Coast horned lizard, American peregrine falcon, bank swallow, Ferruginous hawk, long-eared owl, northern harrier, white-tailed kite, Amargosa vole, American badger, spotted bat, Cushenbury milk-vetch, Cushenbury oxytheca, short-joint beavertail cactus	203,000	4,000	400	0	300	4,700	2.3%
Riparian/ Wetlands	Arroyo toad, California red-legged frog, Coast horned lizard, Couch's spadefoot, Western pond turtle, American peregrine falcon, Arizona Bell's vireo, bald eagle, bank swallow, Crissal thrasher, gilded flicker, elf owl, Inyo California towhee, loggerhead shrike, long-eared owl, Lucy's warbler, northern harrier, redhead, vermillion flycatcher, white-tailed kite, yellow-breasted chat, yellow-headed blackbird, yellow warbler, Amargosa vole, Mojave River vole, Arizona myotis, cave myotis, fringed myotis, hoary bat, long-eared myotispocketed free-tailed bat, spotted bat, western mastiff bat, western yellow bat, Yuma myotis, Ash Meadows gum plant, Inyo County star-tulip, Parish's alkali grass, Parish's phacelia,	413,000	1,000	100	0	200	1,300	0.3%

Table IV.7-193
GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 2

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	Amargosa pupfish, Amargosa speckled dace, Amargosa spring snails							
Agriculture/ Rural Land Cover	American peregrine falcon, Bank swallow, loggerhead shrike, long-eared owl, northern harrier, redhead, yellow-headed blackbird, yellow warbler, Arizona myotis, hoary bat, Tehachapi pocket mouse, western mastiff bat, western yellow bat	803,000	28,000	1,000	8,000	10,000	47,000	5.8%

1 Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

2 Solar impacts include ground-mounted distributed generation.

3 Impacts to the dune community, riparian communities, arid west freshwater emergent marsh, and Californian warm temperate marsh/seep would be avoided through implementation of CMAs. Only impacts determined to be unavoidable would occur in these natural communities.

4 This amount assumes the loss of conservation value for all land fragmented by the well fields

Notes: The natural community classification system is described in Chapter III.7 and follows CDFG 2012. Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Impact BR-5: Siting, construction, decommissioning, and operational activities could result in loss of nesting birds (violation of the federal Migratory Bird Treaty Act and California Fish and Game Code Sections 3503, 3503.5, 3511, and 3513).

Siting, construction, decommissioning, and operations of renewable energy and transmission projects would result in the removal of vegetation and other nesting habitat and cause increased human presence and noise that has the potential to cause the loss of nesting birds, which would be a violation of the federal Migratory Bird Treaty Act. The potential loss of nesting birds resulting from these activities would be adverse without application of CMAs. Avoidance and minimization CMAs (AM-PW-4, 13, 14; AM-DFA-RIPWET-1, 3, 5; AM-DFA-AG-1 through 6; AM-DFA-ICS CMAs for bird species) include the season restrictions, survey requirements, and setbacks necessary to avoid and minimize the loss of nesting birds.

Impact BR-6: Siting, construction, decommissioning, and operational activities would adversely affect habitat linkages and wildlife movement corridors, the movement of fish, and native wildlife nursery sites.

Species-specific habitat linkages and wildlife movement areas are a component of analysis conducted under Impact BR-4 above. Suitable habitat for each species includes areas of habitat linkages and wildlife movement. Analysis under BR-4 specifically incorporates habitat linkage information for desert tortoise, Mohave ground squirrel, and desert bighorn sheep. In addition to the species-specific analysis of impacts to suitable habitat supporting habitat linkages and wildlife movement for species, landscape level information on habitat linkages (i.e., Desert Linkage Network) and migratory bird movement are analyzed below.

Desert Linkage Network

Table IV.7-194 shows the impact analysis for the desert linkage network for Alternative 2. Overall, over 10,000 acres of desert linkage network could be adversely impacted in DFAs and transmission corridors in mainly six different subareas.

In the Cadiz Valley and Chocolate Mountains subarea, DFAs are located in the portion of the desert linkage network that connects the Colorado River to the northern part of the McCoy Mountains. There are also DFAs in the linkage network that extends along the McCoy Mountains and connects south to the Palo Verde Mesa. There are also DFAs in the Palen Valley portion of a linkage network that extends south to the northern foothills of the Chocolate Mountains. There are also small DFAs in the linkage along the Colorado River around Vinagre Wash. As described in the Plan-wide analysis under Impact BR-6, Numerous generally north-south habitat linkages cross the I-10 corridor area between Desert Center and Blythe in this subarea. DFAs under Alternative 2 overlap these habitat linkages and would have the potential to result in adverse impacts to general terrestrial wildlife movement. The existing I-10 corridor in a substantial barrier to movement for

many species and the development of renewable energy both north and south of the I-10 corridor would further reduce the numbers and size of wildlife crossing location, which has the potential to further fragment habitat, reduce gene flow, and isolate populations. Under Alternative 2, the CMAs would not require avoidance and minimization of impacts to habitat linkages or maintenance of linkage function (AM-LL-1 (Alternative 2)).

In the Imperial Borrego Valley, there are DFAs in the northern portion of the desert linkage network that extends along East Mesa from east of the Imperial Valley north toward the Coachella Canal. There are also DFAs in the area that connects the southern end of the Chocolate Mountains. General terrestrial wildlife movement may be affected locally by the development of Covered Activities in these DFAs; however, the siting of DFAs, the reserve design, and the CMAs related to wildlife movement and Covered Species would offset the impacts on general terrestrial wildlife movement.

In the Mojave and Silurian Valley subarea, there are DFAs in the Mojave Valley in a linkage that connects the area east of Barstow north to the Superior Valley. There is a DFA in the linkage network that connects the Silurian Valley to the Turquoise Mountain area in the eastern portion of the subarea. As described in the Plan-wide analysis under Impact BR-6, general terrestrial wildlife movement may be affected locally by the development of Covered Activities in these DFAs, which has the potential to fragment habitat, reduce gene flow, and isolate populations. Under Alternative 2, the CMAs would not require avoidance and minimization of impacts to habitat linkages or maintenance of linkage function (AM-LL-1 (Alternative 2)).

In the Owens River Valley, there are DFAs in the desert linkage network that connects the Haiwee Reservoir to Indian Wells. As described in the Plan-wide analysis under Impact BR-6, DFAs are not located in the desert linkage network corridors elsewhere in these ecoregion subareas. General terrestrial wildlife movement may be affected locally by the development of Covered Activities in these DFAs, which has the potential to fragment habitat, reduce gene flow, and isolate populations. Under Alternative 2, the CMAs would not require avoidance and minimization of impacts to habitat linkages or maintenance of linkage function (AM-LL-1 (Alternative 2)).

In the Pinto Lucerne Valley and Eastern Slopes subarea, there are DFAs in the desert linkage network that connects the Grapevine Canyon Recreation Lands to the Granite Mountains and the Ord Mountains then east to the Bodman Mountains. A DFA occurs in the connection between the Mojave River and Quartzite Mountain. There are also DFAs in the linkage that connects the Little Morongo Canyon to the area around Emerson Lake and in the linkage that connects the San Bernardino Mountains to the Fry Mountains. As described in the Plan-wide analysis under Impact BR-6, Development in these linkage areas would limit or degrade the ability of species, including bighorn sheep and other terrestrial

mammals, to move from the surrounding mountains to the desert floor and other adjoining mountains. DFAs under Alternative 2 overlap these habitat linkages and would have the potential to result in adverse impacts to terrestrial wildlife movement, which has the potential to further fragment habitat, reduce gene flow, and isolate populations. Under Alternative 2, the CMAs would not require avoidance and minimization of impacts to habitat linkages or maintenance of linkage function (AM-LL-1 (Alternative 2)).

In the Providence and Bullion Mountains there is a DFA in the area northeast of the Twentynine Palms Marine Corps Base. DFAs are not located in the desert linkage network corridors elsewhere in this subarea. General terrestrial wildlife movement may be affected locally by the development of Covered Activities in these DFAs; however, the siting of DFAs, the reserve design, and the CMAs related to wildlife movement and Covered Species would offset the impacts on general terrestrial wildlife movement.

In the West Mojave and Eastern Slopes subarea, there are DFAs in the linkage that connects the area around Baldy Mesa along the southern edge of the Plan Area to Helendale. DFAs are also in the linkage between the Kern County line and Fremont Wash. DFAs also occur in the Brisbane Valley and in the linkages around Barstow. Farther west in the Plan Area, there are DFAs in the linkages that connect Fremont Valley and Soledad Mountain to the Tehachapi Mountains. There are also DFAs in the linkages in the Indian Wells Valley area, which could adversely impact movement for Mohave ground squirrel between its most northern population and the rest of its range. DFAs under Alternative 2 overlap these habitat linkages and would have the potential to result in adverse impacts to general terrestrial wildlife movement which has the potential to further fragment habitat, reduce gene flow, and isolate populations. Under Alternative 2, the CMAs would not require avoidance and minimization of impacts to habitat linkages or maintenance of linkage function (AM-LL-1 (Alternative 2)).

Although the DRECP Plan-Wide Reserve Design Envelope for Alternative 2 was developed, in part, to conserve and avoid impacts to habitat linkages and wildlife movement, including the desert linkage network, the DFAs under Alternative 2 are proposed in geographic locations important for the movement of wildlife and in locations that, if developed, could not be replaced or compensated. Additionally, the CMAs under Alternative 2 would not require avoidance and minimization of impacts to habitat linkages or maintenance of linkage function (AM-LL-1 (Alternative 2)). The potential for dispersed development across the Plan Area under Alternative would reduce the probability of maintaining a connected, unfragmented landscape, and it is anticipated that populations would become isolated and that more human intervention and management would be needed (i.e. assisted migration, population augmentation) to maintain populations.

Table IV.7-194
GCP Impact Analysis for the Desert Linkage Network – Alternative 2

Desert Linkage Network by Ecoregion Subarea	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Cadiz Valley and Chocolate Mountains	148,000	500	40	-	1,000	2,000
Imperial Borrego Valley	10,000	70	10	20	20	100
Kingston and Funeral Mountains	12,000	-	-	-	30	30
Mojave and Silurian Valley	101,000	400	-	-	200	600
Owens River Valley	4,000	30	10	-	30	60
Panamint Death Valley	15,000	10	-	-	-	10
Pinto Lucerne Valley and Eastern Slopes	122,000	1,000	600	-	1,000	3,000
Piute Valley and Sacramento Mountains	24,000	-	-	-	-	-
Providence and Bullion Mountains	49,000	200	50	-	40	300
West Mojave and Eastern Slopes	468,000	3,000	500	-	100	4,000
Total	**952,000**	**6,000**	**1,000**	**20**	**3,000**	**10,000**

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
[2] Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Migratory Bird

Migration patterns and the potential impacts of different technologies are discussed, in the typical impacts section (Section IV.7.2.1.3), with direct habitat loss quantified in BR-4, and operational impacts quantified in BR-9. The following analysis focuses on the anticipated distribution of different technology types in relation to known migratory corridors, and bird migration areas in each subarea.

In Alternative 2 wind generation is a moderate proportion of the overall generation mix in nonfederal DFAs. Impacts are mainly divided between the West Mojave and Eastern Slopes, Pinto Lucerne Valley subareas. Wind development would mostly occur on the eastern

slopes of the Tehachapi Mountains and in the mountainous areas around Lucerne Valley. Key bird migration areas affected would include routes between the Tehachapi and San Bernardino passes, and the dry lakes and wetland refuges on and to the north of Edwards AFB, including the North Mojave dry lakes of China Lake, Koehn Lake, Harper Lake and Searles Lake. Further, direct loss of habitat in Antelope Valley would lead to loss of habitat for wintering birds. Small amounts of wind development would occur in the Cadiz and Chocolate Mountains subarea. These areas are near to the Colorado River migratory corridor, and may affect migratory bird movement to and from the Coachella Valley. Similarly, small amounts of wind development would be expected in Imperial Borrego Valley is anticipated in Alternative 2 which would affect migratory and overwintering birds associated with the Salton Sea.

As with the plan-wide impacts, solar development would be constructed throughout the West Mojave and Eastern slopes, and Imperial Borrego Valley subareas. With smaller quantities of development in nonfederal DFAs in the Pinto Lucerne Valley, Mojave and Silurian Valley and Cadiz and Chocolate Mountains subareas. Affected bird migration areas would be the same as for wind development, namely, routes between mountain passes and dry lakes in the north Mojave, foraging areas for overwintering birds in Imperial Borrego Valley, as well as migratory routes between the Colorado River and the Coachella Valley.

Application of CMAs would require projects to be sited and designed to avoid impacts to occupied habitat and suitable habitat for Covered Species to the maximum extent feasible. Further, siting and construction CMAs would minimize direct loss of riparian and wetland habitats. Compensation CMAs would offset habitat loss for Covered Species. A bird and bat use and mortality monitoring program would be implemented during operations. Further, proposed projects that are likely to impact bird and bat Covered Species during operation would develop and implement a project-specific Bird and Bat Covered Species Operational Actions that meets the approval of the appropriate DRECP Coordination Group. The goal of the project-specific BBOS would be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar and geothermal projects. Siting and construction CMAs would minimize direct loss of riparian and wetlands habitats. Compensation CMAs would offset habitat loss for Covered Species. The compensation requirements in the Bird and Bat Covered Species Operational Actions would be based on ongoing/annual fees and the biological basis for the fee would be determined by the mortality effects as annually measured and monitored according to the Bird and Bat Covered Species Operational Actions. In combination, the application of siting, monitoring, operational and compensation CMAs would minimized impacts to migratory birds. Application of CMAs would reduce the overall impacts to migratory bird populations.

Although these CMAs would be in place under Alternative 2, the DFAs are sited in locations that would result in impacts to migratory birds in locations that cannot be avoided,

minimized, and compensated given the potential for fragmentation, isolation, and disruption of migratory patterns that would result from this alternative.

Impact BR-7: Siting, construction, decommissioning, and operational activities would result in habitat fragmentation and isolation of populations of listed and sensitive plants and wildlife.

As discussed in the Plan-wide analysis, the construction and operation of renewable energy and transmission projects can have the potential to fragment intact and interconnected landscapes resulting in isolated patches of habitat, isolated species populations, reduced gene flow, and remaining habitat that is more exposed to the edge effects of adjacent developments. The DRECP integrated planning process, as described in Volume II, avoids and minimizes this impact through the siting of DFAs and through the reserve design. In order to minimize habitat fragmentation and population isolation, DFAs were sited in less intact and more degraded areas. Measures of fragmentation and population isolation effects include the amount of impacts on environmental gradients such as elevation, landforms, slope, and aspect. The impacts to these four environmental gradients under Alternative 2 within DFAs under the GCP would follow the same overall pattern as Plan-wide impacts (AM-LL-1 through AM-LL-4).

In order to minimize habitat fragmentation and population isolation, most DFAs under Alternative 2 were sited in less intact and more degraded areas; however, some DFAs under Alternative 2 do not avoid sensitive resource or intact landscapes because these areas were identified through public scope as priority for the development of renewable energy. Although many of the DFAs are in locations with existing habitat fragmentation and population isolation such that development of Covered Activities in these areas would not appreciably contribute to additional effects, some of the DFAs in this alternative are in direct conflict with landscape intactness, critical populations, and/or key connectivity corridors. See Impact BR-6 for an analysis of the effects of this alternative on wildlife movement.

Impact BR-8: Construction of generation facilities or transmission lines would result in increased predation of listed and sensitive wildlife species.

As discussed in the Plan-wide analysis, Covered Activities in undisturbed desert habitat are likely to supplement predators, and increase predation rates on Covered Species. The GCP Alternative 2 would result 60,000 acres of permanent conversion of natural desert communities and with 40,000 acres of impacts (44% of the total ground disturbance) within areas characterized by disturbed land cover types.

Impacts from Covered Activity are anticipated in Imperial Borrego Valley. Impacts would occur in agricultural habitats south of and west side of the Salton Sea. Increased predation may affect nesting birds; impacts may affect flat-tailed horned lizard, desert tortoise, and

nesting birds. Development in the West Mojave and Eastern Slopes subareas may supplement predators in undisturbed habitats including parts of the Tehachapi Mountains and DFAs to the north of Edwards AFB, around California City and along HWY 395, and much of the development would be expected in disturbed and agricultural land around Lancaster and in the Antelope Valley. In the West Mojave and Eastern Slopes subareas, susceptible species would include nestlings and eggs of Covered Species like tricolored blackbird and golden eagle, mountain plover, Bendire's thrasher, Swainson's hawk, as well as reptiles like the desert tortoise and the Tehachapi slender salamander, and mammals like the Mohave ground squirrel. Covered Activities associated with solar and wind generation in the Pinto and Lucerne Valley subarea would affect areas throughout the Lucerne Valley to the East of Victorville. Species impacted would include golden eagle, and other nesting birds as well as small mammals and reptiles like desert tortoise. The development in the Cadiz and Chocolate Mountains subarea would be expected in the agricultural and disturbed lands around Blythe. Impacts are likely to increase predation on susceptible species including desert tortoise, Mojave fringe-toed lizard, and nesting bird species.

Application of a Common Raven Management Plan (AM-PW-6), approved by the appropriate DRECP Coordination Group would reduce project activities that increase predator subsidization. Activities include: removal of trash and organic waste; minimize introduction of new water sources including pooling of water from dust control; removal of carcasses from bird and bat collisions; and reduction in new nesting and perching sites where feasible.

The level of impact on Non-Covered Species would be similar to that discussed for the Covered Species.

Impact BR-9: Operational activities would result in avian and bat injury and mortality from collisions, thermal flux or electrocution at generation and transmission facilities.

The impacts of operation activities on avian and bat injury and mortality are analyzed below for wind turbines, solar, and transmission.

Wind Turbine

This section summarizes wind turbine operational impacts to bird and bat species within the private lands DFAs. The range of collision rates calculated in Table IV.7-195 is indicative of the overall annual collision rates for all bird and bat species, not just Covered Species. The range of collision rates is estimated for the final full build-out of wind over the life of the Plan, and is based on the range of collision rates in existing published and gray literature. While it is possible to provide a range of possible collision rates, it is not feasible to estimate the collision rate for each Covered Species, but only

infer the propensity for a species to be at risk of collision from its expected distribution and life history of the birds in the Plan Area.

Overall, the Alternative 2 would result in a median of 7,000 collisions per year for birds and 35,000 collisions for bats in DFAs on nonfederal lands. The expected distribution of wind generation indicates that 50% of all collisions would occur in the West Mojave and Eastern Slopes subarea, 34% in the Pinto Lucerne Valley and Eastern Slopes subarea, 6% in the Cadiz Valley and Chocolate Mountains subarea, and 6% in the Imperial Borrego Valley subarea.

Impacts in Mojave and Eastern Slopes Subarea would affect burrowing owl, Swainson's hawk, mountain plover, California condor, tricolored blackbird, and golden eagle. Similarly, collisions in Pinto and Lucerne Valley would affect golden eagle, burrowing owl and Bendire's thrasher. Affected bats in both subareas would include California leaf-nosed bat, pallid bat and Townsend's big-eared bat. Fewer collisions would occur in the Cadiz and Chocolate Mountains and Imperial Valley Borrego subareas, but affected species would include Bendire's thrasher, burrowing owl, California black rail, Gila woodpecker, golden eagle, greater sandhill crane, mountain plover, western yellow-billed cuckoo, and Yuma clapper rail.

Pre-construction CMAs require habitat assessments and pre-construction surveys for covered riparian and wetland bird, burrowing owl, greater sandhill crane, Swainson's hawk, Bendire's thrasher, golden eagle.

Application of siting CMAs would avoid or minimize the risk to species localities. Setbacks from active nests would be required for Bendire's thrasher, California condor, Gila woodpecker, and golden eagle. In addition, projects would be sited and designed to avoid impacts to occupied habitat, and suitable habitat for Covered Species to the maximum extent feasible. Implementation of bat specific CMAs include 0.5 mile setbacks from all bat maternity roosts and 5% disturbance caps on desert scrub and woodland habitats in the vicinity of occupied Pallid bat and Townsend's Big eared Bats roosts would reduce impacts to covered bat species. Although these CMAs would be in place under Alternative 2, some of the DFAs under this alternative are sited in remote geographic locations in intact landscapes where impacts to Covered Species have a higher potential to occur.

Applicants would develop and implement a project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meets the approval of the appropriate DRECP Coordination Group. The goal of the project-specific Bird and Bat Covered Species Operational Actions will be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar, geothermal, or transmission project. A bird and bat use and mortality monitoring program will be implemented during operations using current protocols and best procedures available at time of monitoring. Further, the compensation requirements in the Bird and Bat Covered Species Operational Actions

would be based on ongoing/annual fees and the biological basis for the fee will be determined by the mortality effects as annually measured and monitored according to the Bird and Bat Covered Species Operational Actions.

Similarly, a Condor Operations Strategy (COS) would be developed on a project-specific basis with the goal of avoiding mortality from operations of wind, solar and geothermal projects. No take for condors will be will be permitted in the form of kill from project operations. Any actions taken to encourage condors to leave an area that might result in harassment, injury, or mortality to the bird will be conducted by a Designated Biologist.

Table IV.7-195
GCP Estimated Range of Bird and Bat Collisions per Year by Subarea – Alternative 2

Ecoregion Subarea	# Turbines	Birds (Collisions/Yr)[1]			Bats (Collisions/Yr)[1]		
		Low	*Median*	*High*	*Low*	*Median*	*High*
Cadiz Valley and Chocolate Mountains	89	100	400	2,000	200	2,000	12,000
Imperial Borrego Valley	85	100	400	2,000	200	2,000	12,000
Kingston and Funeral Mountains	0	-	-	-	-	-	-
Mojave and Silurian Valley	0	-	-	-	-	-	-
Owens River Valley	44	100	200	800	100	1,000	6,000
Panamint Death Valley	0	-	-	-	-	-	-
Pinto Lucerne Valley and Eastern Slopes	510	800	3,000	10,000	1,000	12,000	71,000
Piute Valley and Sacramento Mountains	0	-	-	-	-	-	-
Providence and Bullion Mountains	26	-	100	500	100	600	4,000
West Mojave and Eastern Slopes	768	1,000	4,000	15,000	2,000	18,000	108,000
Grand Total	**1,521**	**2,000**	**7,000**	**29,000**	**3,000**	**35,000**	**213,000**

[1] Method for estimation of annual bird and bat collision rates described in Section IV.7.1.1.2 and discussed in more detail in Section IV.7.2.1.3

Note: The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table

Solar

Under the Alternative 2, impacts to avian and bat species from solar development based on the planned solar capacity. The distribution of impacts under the GCP would be similar to that which is found in the Plan-wide analysis. Nonfederal DFAs would see a 3.3-fold increase in collision risks relative to baseline. In DFAs on nonfederal lands, 39% of the collision risk would be in Imperial Borrego Valley, and 37% in West Mojave and Eastern Slopes, with 9% of the collision risks occurring in the Cadiz and Chocolate Mountains, and 9% at Pinto Lucerne Valley; the remaining 5% spread across the rest of the plan area.

Anticipated impacts in the Imperial Borrego Valley subarea under the GCP would occur in agricultural lands south and west side of the Salton Sea. Birds at risk from solar impacts include Bendire's thrasher, burrowing owl, California black rail, Gila woodpecker, golden eagle, greater sandhill crane, mountain plover, southwestern willow flycatcher, Swainson's hawk, Yuma clapper rail, pallid bat, California leaf-nosed bat, and Townsend's big-eared bat. Development in the West Mojave and Eastern Slopes subareas would occur in the Tehachapi Mountains and areas to the north of Edwards AFB, as well as agricultural land around Lancaster and in the Antelope Valley. In these areas, susceptible species would include pallid bat, Townsend's big-eared bat, tricolored blackbird, golden eagle, mountain plover, Bendire's thrasher, burrowing owls and Swainson's hawk, Development in the Cadiz and Chocolate Mountains subarea under the GCP would occur in the agricultural lands around Blythe. Species habitat impacted by Covered Activities include Bendire's thrasher, burrowing owl, Gila woodpecker, golden eagle, greater sandhill crane, mountain plover, pallid bat, California leaf-nosed bat, and Townsend's big-eared bat. However, implementation of surveying, siting and monitoring CMAs would result in avoidance of occupied nesting habitat and minimize impacts to covered bird species. When combined with land cover specific setbacks for agricultural, riparian and wetland habitats impacts to wetland bird species would be minimized and avoided. Further, implementation of species specific CMAs would ensure impacts to birds species would be reduced.

To offset potential impacts, the application of CMAs would require projects to be sited and designed to avoid impacts to occupied and suitable habitat for Covered Species, to the maximum extent feasible. Further, siting and construction CMAs require setbacks from riparian and wetland habitats which would minimize direct loss. Compensation CMAs would offset habitat loss for Covered Species. A bird and bat use and mortality monitoring program would be implemented during operations. Any proposed projects that are likely to impact bird and bat Covered Species during operation would develop and implement project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meet the approval of the appropriate DRECP Coordination Group. The goal of the project-specific Bird and Bat Covered Species Operational Actions would be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar and geothermal

projects. The compensation requirements of AM-LL-4 would be based on ongoing/annual fees and the biological basis for the fee would be determined by the mortality effects as annually measured and monitored according to AM-LL-4. In combination, the application of siting, monitoring, operational and compensation CMAs would minimize impacts to resident and migratory birds.

Bat mortality from solar facilities may occur because of collision or solar flux injury. No DFAs are known to be specifically sensitive areas for bat foraging, and implementation of bat specific CMAs include 500 feet setbacks from all bat maternity roosts and 5% disturbance caps on desert scrub and woodland habitats in the vicinity of occupied pallid bat and Townsend's big-eared bat roosts would reduce impacts to bat Covered Species. Further, the development of Bird and Bat Covered Species Operational Actions (AM-LL-4) as discussed above would greatly reduce the risk to bat populations. Consequently, application of CMAs would reduce the overall impacts to bat populations

Transmission

The transmission collision and electrocution impacts would occur from generation tie lines (collector lines), new substations, and major transmission lines (delivery lines) that deliver power to major load centers. The distribution of impacts from collector lines would mostly occur within DFAs and be similar in distribution to the generation facilities. Most of the affected areas on nonfederal lands would be in Imperial Borrego Valley, Cadiz and Chocolate Mountains and Pinto Lucerne Valley, with 11,000 acres, 4,000, and 4,000 acres of terrestrial impacts. Other subareas that would be impacted to a lesser extent include West Mojave and Eastern Slopes subareas, with 1,000 acres, of terrestrial impacts. The remaining 1,000 acres of terrestrial impacts would be spread throughout the remaining subareas.

Both large transmission lines and the network of smaller gen-tie lines would present collision and electrocution hazard to covered bird species. In particular, lines running perpendicular to migratory corridors, and/or close to bird refuges would represent a greater hazard. Such lines would include those anticipated to run parallel to the Tehachapi Mountains and those that would cross the Tehachapi mountain passes. In other subareas, all lines would represent an additional but lesser risk to migrating and overwintering covered avian species when compared to West Mojave and Eastern Slopes subarea

All bird Covered Species may be impacted by additional transmission infrastructure. To ameliorate potential hazards, transmission projects would reduce impacts to Covered Species by implementing Plan-wide, landscape-level, natural community, and Covered Species CMAs where feasible, as discussed under the wind impacts section.

Applicants would develop and implement a project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meets the approval of the appropriate DRECP

Coordination Group. The goal of the project-specific Bird and Bat Covered Species Operational Actions will be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar, geothermal, or transmission project. A bird and bat use and mortality monitoring program will be implemented during operations using current protocols and best procedures available at time of monitoring. Further, the compensation requirements in the Bird and Bat Covered Species Operational Actions would be based on ongoing/annual fees and the mortality effects as annually measured and monitored according to the Bird and Bat Covered Species Operational Actions will determine the biological basis for the fee.

In addition, transmission projects would implement transmission specific CMAs that would, where feasible, bury electrical collector lines along roads (AM-TRANS-1); fit flight diverters on all transmission projects spanning or within 1,000 feet of water bodies and watercourses (AM-TRANS-2); avoid siting transmission projects that span canyons or are located on ridgelines (AM-TRANS-3); restrict transmission projects to within designated utility corridors (AM-TRANS-4). With the implementation of CMAs impacts to Covered Species would minimized.

Operational Impacts Take Estimates for Covered Avian and Bat Species

The following section summaries the initial estimates for take of Covered Species by operational activities that would require compensatory mitigation. Take estimates integrate all sources of mortality for each technology discussed above.

Table IV.7-196
GCP Estimated Total Take for Covered Avian and Bat Species – Alternative 2

Covered Bird and Bat Species	Solar Impact	Wind Impact	Geothermal Impact	Total Impact
Bendire's thrasher	20	40	0	60
Burrowing owl	90	40	10	140
California condor[1]	0	0	0	0
California black rail	20	0	0	20
Gila woodpecker	20	0	0	20
Golden eagle[2]	n/a	n/a	n/a	n/a
Least Bell's vireo	30	0	0	30
Mountain plover	50	40	10	100
Greater sandhill crane	10	0	10	20
Southwestern willow flycatcher	30	0	0	30
Swainson's hawk	30	30	0	60
Tricolored blackbird	50	70	0	120
Western yellow billed cuckoo	20	0	0	20

Table IV.7-196
GCP Estimated Total Take for Covered Avian and Bat Species – Alternative 2

Covered Bird and Bat Species	Solar Impact	Wind Impact	Geothermal Impact	Total Impact
Yuma clapper rail	20	0	0	20
Grand Total Avian Species	**390**	**220**	**30**	**640**
California leaf-nosed bat	10	10	0	20
Pallid bat	10	120	0	130
Townsend's big-eared bat	30	30	10	70
Grand Total Bat Species	50	160	10	220

1 Take for California condor would not be permitted under the DRECP.

2 Take of Golden Eagle would be permitted on a project by project basis. Based on the 2013 analysis, no more than 15 golden eagles per year would be authorized for 2014 for any new activity within the Plan Area. Take limits for the DRECP area will be re-evaluated annually based on the amount of ongoing take and population estimates of eagles within the local-area population of eagles.

Note: The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table

IV.7.3.4.4.2 Impacts of the Reserve Design under the General Conservation Plan

In the nonfederal GCP portion of the Plan Area for Alternative 2, the Reserve Design Lands include existing conservation areas on nonfederal lands (433,00 acres), nonfederal lands within BLM LUPA conservation designations (1,041,000 acres), and Conservation Planning Areas on nonfederal lands (1,121,000 acres). The following provides an analysis of the conservation that would be provided by these areas, organized by landscape, natural communities, and species.

Landscape

Habitat Linkages

Table IV.7-197 shows the conservation of the desert linkage network under Alternative 2 for the GCP. Conservation of the desert linkage network totals more than 300,000 acres (32%). None of the linkages are entirely conserved under the GCP. However, the majority of the linkage from the Black Mountain area directly north to the Los Angeles/Kern County line in the West Mojave and Eastern Slopes subarea is conserved, as well as the part of the linkage across the Mojave Desert farther north. In addition to conservation of the desert linkage network, CMAs provide for the avoidance and minimization of certain linkages in the DFAs (see Section IV.7.3.4.4.1).

Table IV.7-197
GCP Conservation Analysis for the Desert Linkage Network – Alternative 2

Desert Linkage Network by Subarea	Available Lands (acres)	Existing Conservation[1] (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Cadiz Valley and Chocolate Mountains	148,000	2,000	44,000	12,000	57,000	39%
Imperial Borrego Valley	10,000	-	2,000	100	2,000	17%
Kingston and Funeral Mountains	12,000	30	6,000	1,000	7,000	59%
Mojave and Silurian Valley	101,000	5,000	16,000	6,000	28,000	28%
Owens River Valley	4,000	-	500	2,000	3,000	59%
Panamint Death Valley	15,000	6,000	2,000	500	8,000	57%
Pinto Lucerne Valley and Eastern Slopes	122,000	12,000	5,000	16,000	33,000	27%
Piute Valley and Sacramento Mountains	24,000	-	2,000	2,000	4,000	17%
Providence and Bullion Mountains	49,000	4,000	5,000	3,000	12,000	25%
West Mojave and Eastern Slopes	468,000	26,000	76,000	49,000	151,000	32%
Grand Total	**952,000**	**6,000**	**1,000**	**20**	**3,000**	**10,000**

[1] Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on nonfederal land

[2] Includes nonfederal inholdings within existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations)

Notes: Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. Totals may not sum due to rounding.

Hydrological Resources

A conservation analysis for hydrological resources is provided below, including playa, seep/spring, and the four major rivers in the Plan Area (i.e., Amargosa, Colorado, Mojave and Owens) under Alternative 2 within the GCP. Conservation of riparian areas and wetlands, which co-occur with many of these hydrological resources is provided below under Natural Communities.

Playa

Playa totals approximately 74,000 acres in the Plan Area. Overall, 20% (15,062 acres) would be conserved under Alternative 2 within the GCP. Existing Conservation would account for 15% of the conservation, BLM LUPA would account for 66%, and Conservation Planning Areas would account for 18%. Additionally, playas and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks. CMAs for playas would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided riparian or wetland natural communities.

Seep/Spring

There are 181 seep/spring locations in the Plan Area under Alternative 2 within the GCP. Overall, 35% (64 locations) of the seep/spring locations would be conserved under Alternative 2 within the GCP. The conservation of seep/spring under Alternative 2 would be less than half in all subareas except for the Kingston and Funeral Mountains location (52%, 8 locations). These subareas include Imperial Borrego Valley (46%, 9 locations), Mojave and Silurian Valley (35%, 3 locations), Owens River Valley (22%, 6 locations), Pinto Lucerne Valley and Eastern Slopes (46%, 16 locations), Providence and Bullion Mountains (28%, 3 locations), and West Mojave and Eastern Slopes (29%, 19 locations).

Overall, Existing Conservation would account for 40% of the conservation of seep/spring, BLM LUPA conservation designations would account for 39%, and Conservation Planning Areas would account for 28%. Additionally, seeps and springs and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks. CMAs for seep/spring locations would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided wetland natural communities.

Major Rivers

Overall, 62% of the major rivers would be conserved under Alternative 2 within the GCP, including 40% of the Amargosa River, 33% of the Colorado River, 67% of the Mojave River, and 70% of the Owens River. Conservation Planning Areas would account for 81% of the conservation of the major rivers, Existing Conservation would account for 8%, and BLM LUPA conservation designations would account for 11%. Additionally, major rivers and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks.

Dune and Sand Resources

Overall, 22% (48,000 acres) of dunes and sand resources would be conserved under Alternative 2 within the GCP. Less than 50% of dunes and sand resources would be conserved in all subareas in the Plan Area that contain substantial acreage of dunes and sand resources, except for in Kingston and Funeral Mountains at 50% (4,000 acres). These subareas include Cadiz Valley and Chocolate Mountains at 24% (17,000 acres), Imperial Borrego Valley at 26% (3,000 acres), Mojave and Silurian Valley at 19% (5,000 acres)Owens River Valley at 24% (1,000acres), Panamint and Death Valley at 31% (1,000 acres), Pinto Lucerne Valley and Eastern Slopes at 20% (3,000 acres), Providence and Bullion Mountains at 17% (8,000 acres) and West Mojave and Eastern Slopes at 21% (6,000 acres). Additionally, dunes and sand resources and associated Covered Species, natural communities and ecological functions would be avoided through application of the dune avoidance and minimization CMAs.

Environmental Gradients

The conservation analysis addresses four types of environmental gradients in the Plan Area: elevation, landforms, slope, and aspect. The conservation of these four environmental gradients under Alternative 2 within the GCP would follow the same overall pattern as Plan-wide conservation.

Natural Communities

Table IV.7-198 shows the conservation to natural communities under the GCP. A conservation summary by general community is provided below in comparison to Plan-wide conservation discussed in Section IV.7.3.2.1.2. Appendix R2 provides a detailed analysis of natural community conservation by ecoregion subarea.

California forest and woodlands

Overall, approximately 27,000 acres (23%) of California forest and woodlands would be conserved under Alternative 2 under the GCP. The majority of conservation would occur in the West Mojave and Eastern Slopes subarea. Almost half of the conserved acreage would come from BLM LUPA conservation designations. In addition to conservation of California forest and woodlands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 10,000 acres (13%) of chaparral and coastal scrubs would be conserved under Alternative 2 under the GCP. The majority of conservation would occur in Conservation Planning Areas in the West Mojave and Eastern Slopes subarea. In addition to conservation of chaparral and coastal scrubs, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert conifer woodlands

Overall, approximately 21,000 acres (20%) of desert conifer woodlands would be conserved under Alternative 2 under the GCP. The majority of conservation would occur in the West Mojave and Eastern Slopes and Pinto Lucerne Valley and Eastern Slopes subareas. Conservation would primarily come from Conservation Planning Areas. In addition to conservation of desert conifer woodlands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert outcrop and badlands

Overall, approximately 111,000 acres (50%) of desert outcrop and badlands would be conserved under Alternative 2 in the GCP. The majority of conservation would occur in the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas. Conservation would primarily come from existing conservation and BLM LUPA conservation designations. In addition to conservation of desert outcrop and badlands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert scrubs

Overall, approximately 843,000 acres (29%) of desert scrubs would be conserved under Alternative 2 under the GCP. The majority of conservation would occur in the Imperial Borrego Valley and West Mojave and Eastern Slopes subareas. Over one third of the conservation would come from BLM LUPA conservation designations. In addition to conservation of desert scrubs, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Dunes

Overall, approximately 10,000 acres (29%) of dunes would be conserved under Alternative 2 under the GCP. Most of the conserved dune acreage would be located in the Mojave and Silurian Valley and Kingston and Funeral Mountains subareas. Conservation would primarily come from Conservation Planning Areas. In addition, CMA application would require avoidance of all dunes and prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

Grasslands

Overall, approximately 24,000 acres (12%) of grasslands would be conserved under Alternative 2 under the GCP. The majority of conserved acreage would occur in the West Mojave and Eastern Slopes subarea. About half of the conservation would be in Conservation Planning Areas. In addition to conservation of grasslands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Riparian

Overall, approximately 75,000 acres (37%) of riparian communities would be conserved under Alternative 2 under the GCP. Most of the conserved acreage would occur in the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas. Much of the conservation would come from BLM LUPA conservation designations. In addition, CMA application would require avoidance of and setbacks from all riparian communities as well as to other CMAs that would benefit riparian communities beyond simply conservation.

Wetlands

Overall, approximately 80,000 acres (25%) of riparian communities would be conserved under Alternative 2 under the GCP. Most of the conserved acreage would occur in the Imperial Borrego Valley, Owens River Valley, and West Mojave and Eastern Slopes subareas. Conservation would primarily come from BLM LUPA conservation designations and Conservation Planning Areas. In addition, CMA application would require avoidance of and setbacks from Arid West freshwater emergent marsh and Californian warm temperate marsh/seep as well as other CMAs that would benefit riparian communities beyond simply conservation.

Table IV.7-198
GCP Conservation Analysis for Natural Communities – Alternative 2

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
California forest and woodland						
Californian broadleaf forest and woodland	61,000	800	10,000	700	11,000	18%
Californian montane conifer forest	44,000	7,000	5,000	4,000	16,000	36%
Chaparral and coastal scrub community (Cismontane scrub)						
Californian mesic chaparral	3,000	20	400	200	600	17%
Californian pre-montane chaparral	1,000	0	200	10	200	19%
Californian xeric chaparral	19,000	600	600	3,000	4,000	22%
Central and south coastal California seral scrub	1,000	0	0	30	30	2%
Central and South Coastal Californian coastal sage scrub	42,000	300	700	3,000	4,000	10%
Western Mojave and Western Sonoran Desert borderland chaparral	15,000	600	10	800	1,000	9%
Desert conifer woodlands						
Great Basin Pinyon - Juniper Woodland	104,000	7,000	2,000	12,000	21,000	20%

Table IV.7-198
GCP Conservation Analysis for Natural Communities – Alternative 2

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Desert outcrop and badlands						
North American warm desert bedrock cliff and outcrop	220,000	68,000	29,000	14,000	111,000	50%
Desert Scrub						
Arizonan upland Sonoran desert scrub	8,000	3,000	10	900	4,000	50%
Intermontane deep or well-drained soil scrub	24,000	2,000	2,000	3,000	7,000	29%
Intermontane seral shrubland	68,000	500	80	3,000	3,000	5%
Inter-Mountain Dry Shrubland and Grassland	152,000	21,000	15,000	11,000	47,000	31%
Intermountain Mountain Big Sagebrush Shrubland and steppe	48,000	1,000	6,000	1,000	9,000	18%
Lower Bajada and Fan Mojavean - Sonoran desert scrub	2,254,000	246,000	259,000	180,000	685,000	30%
Mojave and Great Basin upper bajada and toeslope	228,000	13,000	20,000	28,000	62,000	27%
Shadscale - saltbush cool semi-desert scrub	157,000	1,000	6,000	19,000	26,000	17%
Southern Great Basin semi-desert grassland	70	0	0	0	0	5%
Dunes						
North American warm desert dunes and sand flats	34,000	800	2,000	7,000	10,000	29%
Grassland						
California Annual and Perennial Grassland	196,000	8,000	4,000	12,000	24,000	12%

Table IV.7-198
GCP Conservation Analysis for Natural Communities – Alternative 2

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
California annual forb/grass vegetation	7,000	400	300	200	900	13%
Riparian						
Madrean Warm Semi-Desert Wash Woodland/Scrub	96,000	3,000	24,000	7,000	34,000	36%
Mojavean semi-desert wash scrub	17,000	3,000	1,000	2,000	6,000	35%
Riparian	600	20	0	300	300	57%
Sonoran-Coloradan semi-desert wash woodland/scrub	34,000	11,000	5,000	4,000	19,000	55%
Southwestern North American riparian evergreen and deciduous woodland	6,000	400	300	2,000	2,000	42%
Southwestern North American riparian/wash scrub	47,000	3,000	3,000	7,000	13,000	27%
Wetland						
Arid West freshwater emergent marsh	4,000	40	200	1,000	1,000	33%
Californian warm temperate marsh/seep	400	0	0	80	80	20%
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	36,000	2,000	3,000	3,000	8,000	22%
Open Water	114,000	800	400	15,000	16,000	14%
Playa	52,000	20	11,000	300	11,000	22%
Southwestern North American salt basin and high marsh	112,000	3,000	21,000	18,000	42,000	38%
Wetland	8,000	30	200	500	700	9%

Table IV.7-198
GCP Conservation Analysis for Natural Communities – Alternative 2

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Other Land Cover						
Agriculture	693,000	5,000	2,000	3,000	9,000	1%
Developed and Disturbed Areas	399,000	500	2,000	400	2,000	1%
Not Mapped	4,000	50	200	300	600	13%
Rural	110,000	400	4,000	10,000	14,000	13%
Total	**5,420,000**	**412,000**	**440,000**	**374,000**	**1,227,000**	**23%**

1 Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on nonfederal land

2 Includes nonfederal inholdings within existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations)

3 Conservation Planning Areas include areas of the reserve design from which reserve areas would be assembled on private and other public land.

Notes: Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Covered Species Habitat

Table IV.7-199 shows the conservation of Covered Species modeled habitat under the Alternative 2 (before the application of CMAs) GCP. Generally, the percent conservation of Covered Species modeled habitat in available lands is highly variable, ranging from 1% for greater sandhill crane (primarily found in agricultural areas) to 77% for triple-ribbed milk-vetch.

Conservation percentages are in large part related to the location and types of habitat modeled for the Covered Species. For example, modeled habitat for greater sandhill crane, which is primarily freshwater wetland and agriculture, is limited to the Palo Verde and Imperial valleys and is mostly within DFAs.

Much of the modeled habitats for desert tortoise and Mojave fringe-toed lizard are in the Mojave Desert in areas that are either in Conservation Planning Areas or occur in the BLM

LUPA conservation designations. Flat-tailed horned lizard modeled habitat is conserved entirely in the Imperial Borrego Valley, mostly in existing conservation. Tehachapi slender salamander modeled habitat occurs in the Tehachapi Mountains where conservation is primarily composed of BLM LUPA conservation designations. Furthermore, the siting of the DFAs under Alternative 2 largely avoid habitat for Mojave fringe-toed lizard and Tehachapi slender salamander, and CMAs require avoidance of and setbacks from riparian habitat, wetland habitat, and dune habitat would further avoid and minimize the impacts on these species.

Conservation of bird species associated primarily with wetland and riparian habitats, including California black rail, least Bell's vireo, southwestern willow flycatcher, tricolored blackbird, western yellow-billed cuckoo, and Yuma clapper rail would be augmented by CMAs requiring avoidance of and setbacks from riparian and wetland habitats. Conservation of Bendire's thrasher occurs in nearly every subarea of the Plan Area, but is mainly in BLM LUPA conservation designations and Conservation Planning Areas. Burrowing owl, widespread, but mainly associated with open areas in the West Mojave and Eastern Slopes would primarily be conserved in BLM LUPA conservation designations.

California condor mainly occurs in the West Mojave and Eastern Slopes subarea so the majority of conservation is also in this subarea. Golden eagle modeled suitable habitat and associated conservation is widespread in the Plan Area with most of the conservation in BLM LUPA conservation designations and existing conservation. Swainson's hawk is primarily associated with the West Mojave and Eastern Slopes, Imperial Borrego Valley, and Owens River Valley subareas; of these subareas, over 20% of suitable habitat is conserved only in the Owens River Valley subarea. In addition to conservation of suitable habitat, CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs.

Most of the modeled suitable habitat for Gila woodpecker is conserved in the Imperial Borrego Valley and Cadiz Valley and Chocolate Mountains subareas in existing conservation areas and BLM LUPA conservation designations. About half of the conservation of mountain plover suitable habitat is in Conservation Planning Areas in the West Mojave and Eastern Slopes subarea.

Conservation of suitable habitat for desert pupfish and Mohave tui chub is mostly in existing conservation areas. Although conservation of desert pupfish is relatively low, especially in the Imperial Borrego Valley subarea, avoidance and setback provisions for managed wetlands and agricultural drains would conserve wetland and riparian features within the agricultural matrix and provide conservation benefits to desert pupfish. Owens pupfish and Owens tui chub are conserved primarily in Conservation Planning Areas.

Conservation of suitable habitat for bighorn sheep, both inter-mountain and mountain habitat, is widespread. The siting of the DFAs under Alternative 2 largely avoid habitat for bighorn sheep. Over half of the conservation of burro deer is from BLM LUPA conservation designations. Conservation of desert kit fox is from different conservation designations. Conserved habitat for desert kit fox is mostly in the Cadiz Valley and Chocolate Mountains and West Mojave and Eastern Slopes subareas. Almost half of the available suitable habitat for Mohave ground squirrel is in the Cadiz Valley and Chocolate Mountains subarea, but less than a quarter of the available suitable habitat is conserved in the remaining subareas. Suitable habitat for the covered bat species—California leaf-nosed bat, pallid bat, and Townsend's big-eared bat—is widespread and conserved in existing conservation areas, BLM LUPA conservation designations, and Conservation Planning Areas. In addition to conservation of suitable habitat for covered mammal species, the CMAs require avoidance of and setbacks from riparian and wetland habitat that would reduce impacts on these habitats used by Mohave ground squirrel, California leaf-nosed bat, pallid bat, and Townsend's big-eared bat.

Conservation of plant species ranges from 7% of suitable habitat for alkali mariposa-lily to 77% of suitable habitat for triple-ribbed milk-vetch. The proportion of suitable habitat conserved in existing conservation, BLM LUPA conservation designations, and Conservation Planning Areas varies by species. However, in addition to the conservation of modeled suitable habitat, the CMAs require surveys for plant Covered Species for all Covered Activities, and the CMAs requiring avoidance of and setbacks from occupied habitat would further reduce the impacts on these species.

In addition to conservation of suitable habitat for Covered Species, compensation CMAs would offset habitat loss for all Covered Species.

Table IV.7-199
GCP Conservation Analysis for Covered Species Habitat – Alternative 2

Species	Available Lands (acres)	Existing Conservation[1] (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Amphibian/Reptile						
Agassiz's desert tortoise	2,248,000	140,000	307,000	203,000	650,000	29%
Flat-tailed horned lizard	310,000	112,000	20,000	3,000	135,000	44%
Mojave fringe-toed lizard	168,000	3,000	14,000	14,000	31,000	19%
Tehachapi slender salamander	41,000	300	6,000	500	7,000	17%
Bird						
Bendire's thrasher	405,000	35,000	32,000	43,000	110,000	27%
Burrowing owl	3,244,000	73,000	209,000	196,000	478,000	15%
California black rail	127,000	5,000	500	6,000	11,000	9%
California condor	997,000	43,000	43,000	38,000	124,000	12%
Gila woodpecker	56,000	4,000	1,000	2,000	6,000	12%
Golden eagle–foraging	1,498,000	154,000	219,000	138,000	512,000	34%
Golden eagle–nesting	676,000	108,000	69,000	60,000	238,000	35%
Greater sandhill crane	601,000	5,000	500	1,000	7,000	1%
Least Bell's vireo	104,000	9,000	7,000	23,000	38,000	36%
Mountain plover	811,000	6,000	2,000	11,000	19,000	2%
Southwestern willow flycatcher	258,000	6,000	12,000	22,000	40,000	16%
Swainson's hawk	1,339,000	15,000	26,000	65,000	106,000	8%
Tricolored blackbird	257,000	6,000	2,000	16,000	24,000	9%
Western yellow-billed cuckoo	111,000	2,000	5,000	23,000	31,000	28%
Yuma clapper rail	31,000	3,000	-	2,000	5,000	16%

Table IV.7-199
GCP Conservation Analysis for Covered Species Habitat – Alternative 2

Species	Available Lands (acres)	Existing Conservation[1] (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Fish						
Desert pupfish	7,000	800	10	200	1,000	14%
Mohave tui chub	100	70	-	20	90	63%
Owens pupfish	13,000	-	600	4,000	4,000	31%
Owens tui chub	13,000	-	600	4,000	4,000	31%
Mammal						
Bighorn sheep – inter-mountain habitat	465,000	40,000	67,000	37,000	144,000	31%
Bighorn sheep – mountain habitat	807,000	149,000	61,000	87,000	297,000	37%
California leaf-nosed bat	979,000	137,000	129,000	65,000	331,000	34%
Mohave ground squirrel	1,319,000	51,000	175,000	153,000	379,000	29%
Pallid bat	3,775,000	393,000	400,000	307,000	1,101,000	29%
Townsend's big-eared bat	3,510,000	308,000	359,000	293,000	959,000	27%
Plant						
Alkali mariposa-lily	117,000	200	70	8,000	8,000	7%
Bakersfield cactus	200,000	17,000	12,000	5,000	35,000	17%
Barstow woolly sunflower	82,000	3,000	20,000	16,000	38,000	47%
Desert cymopterus	137,000	2,000	29,000	31,000	62,000	45%
Little San Bernardino Mountains linanthus	130,000	5,000	11,000	7,000	23,000	18%
Mojave monkeyflower	41,000	100	5,000	6,000	11,000	27%
Mojave tarplant	129,000	19,000	15,000	4,000	38,000	30%

Table IV.7-199
GCP Conservation Analysis for Covered Species Habitat – Alternative 2

Species	Available Lands (acres)	Existing Conservation[1] (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Owens Valley checkerbloom	92,000	200	3,000	19,000	22,000	24%
Parish's daisy	72,000	19,000	3,000	5,000	27,000	37%
Triple-ribbed milk-vetch	3,000	900	40	1,000	2,000	77%

1 Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on nonfederal land

2 Includes nonfederal inholdings within existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations)

3 Conservation Planning Areas include areas of the reserve design from which reserve areas would be assembled on private and other public land.

Notes: Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For Agassiz's desert tortoise, desert tortoise important areas were identified that include tortoise conservation areas (TCAs), desert tortoise linkages, and desert tortoise high priority habitat (see desert tortoise BGOs in Appendix C). Table IV.7-200 provides a conservation analysis for these desert tortoise important areas, organized by desert tortoise Recovery Units: Colorado Desert, Eastern Mojave, and Western Mojave. Within the Colorado Desert Recovery Unit, 36% of TCAs, linkage habitat, and high priority habitat would be conserved under Alternative 2. Within the Eastern Mojave Recovery Unit, 41% of the important areas would be conserved Alternative 2. Within the Western Mojave Recovery Unit, 33% of TCAs and linkage habitat would be conserved under Alternative 2. Under Alternative 2, the CMAs would not prohibit the development of Covered Activities in the TCAs (AM-DFA-ICS-5 (Alternative 2)). Additionally under Alternative 2, the CMAs would require that impacts to desert tortoise linkage only limit impact to the minimum functionality within each linkage (AM-DFA-ICS-6 (Alternative 2)). Compensation CMAs would be required for impacts to desert tortoise, including desert tortoise important areas.

Table IV.7-200
GCP Conservation Analysis for Desert Tortoise Important Areas – Alternative 2

Recovery Unit	Desert Tortoise Important Areas	Available Lands (acres)	Existing Conservation[1] (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Colorado Desert	High Priority Habitat	31,000	800	5,000	4,000	10,000	33%
	Linkage	63,000	100	8,000	6,000	14,000	22%
	TCA	269,000	16,000	76,000	15,000	107,000	40%
Colorado Desert Total		*363,000*	*17,000*	*90,000*	*25,000*	*131,000*	*36%*
Eastern Mojave	Linkage	56,000	4,000	12,000	10,000	26,000	46%
	TCA	66,000	6,000	8,000	10,000	25,000	37%
Eastern Mojave Total		*122,000*	*10,000*	*20,000*	*21,000*	*50,000*	*41%*
Western Mojave	Linkage	407,000	2,000	13,000	38,000	53,000	13%
	TCA	392,000	23,000	187,000	2,000	212,000	54%
Western Mojave Total		*798,000*	*25,000*	*200,000*	*41,000*	*266,000*	*33%*
Grand Total		**1,283,000**	**52,000**	**310,000**	**86,000**	**447,000**	**35%**

[1] Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on nonfederal land

[2] Includes nonfederal inholdings within existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations)

[3] Conservation Planning Areas include areas of the reserve design from which reserve areas would be assembled on private and other public land.

Notes: Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For Mohave ground squirrel, Mohave ground squirrel important areas were identified that include key population centers, linkages, expansion areas, and climate change extension areas (see Mohave ground squirrel BGOs in Appendix C). Table IV.7-201 provides a conservation analysis for these Mohave ground squirrel important areas. Approximately 48% of key population centers and 44% of linkages would be conserved under Alternative 2. Expansion areas and climate change extension areas would be conserved at 51% and 34% respectively. The CMAs would prohibit impacts that affect the viability of linkages. Compensation CMAs would be required for impacts to Mohave ground squirrel, including Mohave ground squirrel important areas.

Table IV.7-201
GCP Conservation Analysis for Mohave Ground Squirrel Important Areas – Alternative 2

Mohave Ground Squirrel Important Area Type	Available Lands (acres)	Existing Conservation[1] (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Key Population Center	193,000	14,000	40,000	39,000	93,000	48%
Linkage	103,000	3,000	25,000	17,000	45,000	44%
Expansion Area	258,000	21,000	62,000	49,000	132,000	51%
Climate Change Extension	131,000	13,000	6,000	25,000	44,000	34%
Total	**684,000**	**50,000**	**133,000**	**131,000**	**315,000**	**46%**

[1] Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on nonfederal land

[2] Includes nonfederal inholdings within existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations)

[3] Conservation Planning Areas include areas of the reserve design from which reserve areas would be assembled on private and other public land.

Notes: Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000;

values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Within the Plan Area, critical habitat has been designated by the USFWS for the following Covered Species: desert tortoise, southwestern willow flycatcher, desert pupfish, and Parish's daisy. For desert tortoise, approximately 50% of the desert tortoise designated critical habitat on nonfederal lands would be conserved under Alternative 2, including 30,000 acres in existing conservation areas, 236,000 acres in BLM LUPA conservation designations, and 12,000 acres in Conservation Planning Areas. For southwestern willow flycatcher, approximately 62% of the southwestern willow flycatcher designated critical habitat on nonfederal lands would be conserved in Reserve Design Lands under Alternative 2, including 600 acres in existing conservation areas, 90 acres in BLM LUPA conservation designations, and 3,000 acres in Conservation Planning Areas. For desert pupfish, approximately 76% of the desert pupfish designated critical habitat on nonfederal lands would be conserved in Reserve Design Lands under Alternative 2, including 100 acres in existing conservation areas and 100 acres in BLM LUPA conservation designations. For Parish's daisy, approximately 36% of the Parish's daisy designated critical habitat on nonfederal lands would be conserved in Reserve Design Lands under Alternative 2, including 200 acres in BLM LUPA conservation designations.

Non-Covered Species Critical Habitat

Eight Non-Covered Species have Critical Habitat within GCP Lands. Table IV.7-202 shows the total amount of Critical Habitat and the amount within each reserve designation for Non-Covered Species. These reserve designations are considered beneficial impacts for biological resources. All or a substantial portion of each species' Critical Habitat in the GCP Lands would be within one of the conservation designations. Critical Habitat for bighorn sheep occurs mostly within existing conservation and within Conservation Planning Areas for arroyo toad, but mostly within nonfederal inholdings on BLM land for the other species.

Table IV.7-202
Critical Habitat within GCP Lands for Non-Covered Species – Alternative 2

Common Name	Acres of Critical Habitat within GCP Lands	Acres of Critical Habitat in Existing Conservation	Acres of Critical Habitat in BLM LUPA Lands (Nonfederal Inholdings)	Acres of Critical Habitat in Conservation Planning Areas	Acres in Conservation
Amargosa vole	600	0	300	0	300
Arroyo toad	4,000	0	0	3,000	3,000

Table IV.7-202
Critical Habitat within GCP Lands for Non-Covered Species – Alternative 2

Common Name	Acres of Critical Habitat within GCP Lands	Acres of Critical Habitat in Existing Conservation	Acres of Critical Habitat in BLM LUPA Lands (Nonfederal Inholdings)	Acres of Critical Habitat in Conservation Planning Areas	Acres in Conservation
Cushenbury buckwheat	200	0	100	0	100
Cushenbury milk-vetch	200	0	100	0	100
Cushenbury oxytheca	30	0	30	0	30
Lane Mountain milk-vetch	2,000	0	2,000	0	2,000
Pierson's milk-vetch	400	0	0	400	400
Peninsular Bighorn sheep	40,000	36,000	0	300	36,300

IV.7.3.4.5 Impacts Outside of Plan Area

IV.7.3.4.5.1 Impacts of Transmission Out of Plan Area

The impacts of Out of Plan Area transmission on biological resources would be the same under all alternatives. These impacts are as described for the No Action Alternative in Section IV.7.3.1.6.1 (Impacts of Transmission Out of Plan Area in No Action Alternative).

IV.7.3.4.5.2 Impacts of BLM LUPA Decisions Outside of Plan Area

Natural Communities and Other Land Covers

There are 1,057,874 acres of natural communities in BLM LUPA lands outside the plan area. Of these, 324,431 acres would be proposed NLCS lands and 265,478 would be existing and proposed ACECs, for a total of 483,656 acres (accounting for overlapping designations) of natural communities in BLM LUPA conservation under Alternative 2.

Table IV.7-203
Estimated Acres of Natural Communities in BLM LUPA Outside of Plan Area – Alternative 2

Natural Communities	Natural Communities within BLM LUPA Lands Outside Plan Area (acres)	BLM LUPA Designation†		Total Natural Communities in BLM LUPA Conservation (acres)
		Proposed NLCS (acres)	*Existing and Proposed ACECs (acres)*	
Dune/Rocky, Barren, and Un-vegetated Communities				
Barren	23,402	3,027	2,841	3,992
Forest/Woodland Communities				
Closed-Cone Pine-Cypress	287	0	231	231
Jeffrey Pine	27	26	0	26
Juniper	31,590	7,199	6,963	7,937
Montane Hardwood	282	2	0	2
Pinyon-Juniper	73,444	18,432	10,079	19,443
Ponderosa Pine	1,445	0	0	0
Sierran Mixed Conifer	120	0	0	0
Subalpine Conifer	189	0	0	0
Grassland Communities				
Annual Grassland	6,353	3,315	0	3,315
Riparian/Wetland Communities				
Desert Riparian	205	2	205	205
Desert Wash	22,414	13,806	9,106	14,030
Freshwater Emergent Wetland	952	877	0	877
Lacustrine	99	90	19	90
Scrub and Chaparral Communities				
Alkali Desert Scrub	189,771	80,134	10,729	81,121
Chamise-Redshank Chaparral	8,317	4,531	4,117	7,647
Coastal Scrub	12	0	0	0
Desert Scrub	572,907	154,494	208,800	302,449
Desert Succulent Shrub	35,115	14,869	957	14,869
Joshua Tree	21,034	4,491	1,135	3,913
Low Sage	3,035	2,995	895	2,995
Mixed Chaparral	12,821	5,200	5,465	9,458
Sagebrush	48,566	8,707	3,673	8,810

Table IV.7-203
Estimated Acres of Natural Communities in
BLM LUPA Outside of Plan Area – Alternative 2

Natural Communities	Natural Communities within BLM LUPA Lands Outside Plan Area (acres)	BLM LUPA Designation†		Total Natural Communities in BLM LUPA Conservation (acres)
		Proposed NLCS (acres)	*Existing and Proposed ACECs (acres)*	
Other Land Covers				
Cropland	3,617	476	0	476
Irrigated Hayfield	421	421	0	421
Urban	1,449	1,337	263	1,349
Total	**1,057,874**	**324,431**	**265,478**	**483,656**

Source: State of California GAP GIS data for vegetation classifications (CDFG 1998).

Special-Status Species

Many special-status species are known to occur within proposed or existing conservation areas within the BLM LUPA lands outside of the Plan Area. See Table IV.7-204 below for the list of special-status species within conservation areas. Refer to Table IV.7-203 above to see the natural communities present within the conservation areas that provide habitat for these species. Table IV.7-50 provides a cross-walk for the special-status species and the natural communities that provide habitat for these species.

In order to analyze how the preservation and conservation of the BLM LUPA lands outside of the Plan Area will affect the special-status species listed below, the preferred BLM LUPA conservation land boundaries within the CDCA but outside of the DRECP plan area were applied to the species' occurrence data available from CNDDB. Based on this analysis, Alternative 2 is expected to beneficially affect the 125 species shown in Table IV.7-204 that are known to occur within the NLCS and ACECs on BLM LUPA lands outside of the Plan Area, and the natural communities that provide habitat for these species shown in Table IV.7-203 above. Under Alternative 2, 26 species, dominated by plant species, are not present within existing and proposed BLM LUPA conservation lands.

Table IV.7-204
Special-Status Species Occurring in BLM LUPA Outside of Plan Area – Alternative 2

Special-Status Species Present	Federal Status[1]	State Status[2]	Present in BLM LUPA Conservation Lands (Proposed NLCS and Existing and Proposed ACECs)
Amphibians/Reptiles			
Agassiz's desert tortoise	FT	ST	Y
Arroyo toad	FE	CSC	Y
Barefoot gecko	BLM	ST	Y
Coast horned lizard	-	CSC	Y
Coachella fringe-toed lizard	FE	SC	Y
Couch's spadefoot	BLM	CSC	Y
flat-tailed horned lizard	BLM, FS	CSC	Y
Rosy boa	BLM, FS	-	Y
Sierra Madre yellow-legged frog	FE	SC, CSC	Y
Fish			
desert pupfish	FE	SE	Y
Mohave tui chub	FE	SE	N
Birds			
burrowing owl	-	CSC	Y
California black rail	BLM, BCC	ST	Y
Crissal thrasher	BLM, BCC	CSC	Y
Gray vireo	BLM, BCC	CSC	N
golden eagle	BGEPA	FP	Y
Inyo California towhee	FT	SE	Y
Le Conte's thrasher	BLM	CSC	Y
Least Bell's vireo	FE	SE	Y
Loggerhead shrike	BCC	CSC	Y
Long-eared owl	BLM	CSC	Y
prairie falcon	BCC	-	Y
Swainson's hawk	BLM	ST	Y
southwestern willow flycatcher	FE	SE	Y
Vermilion flycatcher	-	CSC	Y
western snowy plover	FT	CSC	Y
Yellow warbler	BCC	CSC	Y
Yuma clapper-rail	FE, BCC	ST, FP	Y

Table IV.7-204
Special-Status Species Occurring in BLM LUPA Outside of Plan Area – Alternative 2

Special-Status Species Present	Federal Status[1]	State Status[2]	Present in BLM LUPA Conservation Lands (Proposed NLCS and Existing and Proposed ACECs)
Mammals			
American badger	-	CSC	Y
big free-tailed bat	-	CSC	Y
Hoary bat	-	WBWG	Y
Long-eared myotis	BLM	-	Y
Mojave ground squirrel	-	ST	Y
Nelson's bighorn sheep	BLM	-	Y
Palm Springs pocket mouse	BLM	CSC	Y
pallid bat	BLM	CSC	Y
Peninsular bighorn sheep	FE, BLM	ST, FP	Y
pocketed free-tailed bat	-	CSC	Y
Spotted bat	BLM	CSC	Y
Townsend's big-eared bat	BLM	CSC	Y
Western mastiff bat	BLM	CSC	Y
Western small-footed myotis	BLM	-	Y
western yellow bat	-	CSC	Y
Plants			
Abrams' spurge	-	(CRPR 2.2)	Y
Amargosa beardtongue	BLM	(CRPR 1B.3)	Y
annual rock-nettle	-	(CRPR 2.2)	Y
Arizona pholistoma	-	(CRPR 2.3)	Y
Arizona spurge	-	(CRPR 2.3)	Y
Ash Meadows buckwheat	-	(CRPR 2.3)	Y
Bailey's greasewood	-	(CRPR 2.3)	Y
Barneby's phacelia	-	(CRPR 2.3)	N
black bog-rush	-	(CRPR 2.2)	N
bristly scaleseed	-	(CRPR 2.3)	Y
brown turbans	-	(CRPR 2.3)	Y
California ayenia	-	(CRPR 2.3)	Y
California satintail	-	(CRPR 2.1)	Y
California saw-grass	-	(CRPR 2.2)	Y
chaparral sand-verbena	-	(CRPR 1B.1)	Y
Charlotte's phacelia	BLM	(CRPR 1B.2)	Y

Table IV.7-204
Special-Status Species Occurring in BLM LUPA Outside of Plan Area – Alternative 2

Special-Status Species Present	Federal Status[1]	State Status[2]	Present in BLM LUPA Conservation Lands (Proposed NLCS and Existing and Proposed ACECs)
Chimney Creek nemacladus	-	(CRPR 1B.2)	N
Coachella Valley milk-vetch	FE	(CRPR 1B.2)	Y
Cove's cassia	-	(CRPR 2.2)	Y
creamy blazing star	-	(CRPR 1B.3)	Y
curly herissantia	-	(CRPR 2.3)	Y
Cushenbury buckwheat	FE	(CRPR 1B.1)	N
Cushenbury oxytheca	FE	(CRPR 1B.1)	N
Death Valley sandpaper-plant	-	(CRPR 1B.2)	Y
Dedecker's clover	-	(CRPR 1B.3)	N
desert beauty	-	(CRPR 2.3)	Y
desert spike-moss	-	(CRPR 2.2)	Y
dwarf germander	-	(CRPR 2.2)	N
Emory's crucifixion-thorn	-	(CRPR 2.2)	N
forked buckwheat	-	(CRPR 1B.2)	N
Geyer's milk-vetch	-	(CRPR 2.2)	Y
Gilman's buckwheat	-	(CRPR 1B.3)	Y
Gilman's cymopterus	-	(CRPR 2.3)	Y
Gilman's goldenbush	-	(CRPR 1B.3)	Y
glandular ditaxis	-	(CRPR 2.2)	Y
Greene's rabbitbrush	-	(CRPR 2.3)	Y
hairy stickleaf	-	(CRPR 2.3)	Y
Hall's daisy	-	(CRPR 1B.3)	N
Harwood's milk-vetch	-	(CRPR 2.2)	Y
Hoffmann's buckwheat	-	(CRPR 1B.3)	Y
Holmgren's lupine	-	(CRPR 2.3)	Y
Inflated Cima milk-vetch	-	(CRPR 1B.3)	Y
intermontane lupine	-	(CRPR 2.3)	Y
Inyo blazing star	-	(CRPR 1B.3)	Y
Inyo County star-tulip	-	(CRPR 1B.1)	Y
Inyo rock daisy	-	(CRPR 1B.2)	Y
jackass-clover	-	(CRPR 2.2)	Y
Jacumba milk-vetch	-	(CRPR 1B.2)	Y
July gold	-	(CRPR 1B.3)	Y

Table IV.7-204
Special-Status Species Occurring in BLM LUPA Outside of Plan Area – Alternative 2

Special-Status Species Present	Federal Status[1]	State Status[2]	Present in BLM LUPA Conservation Lands (Proposed NLCS and Existing and Proposed ACECs)
Kelso Creek monkeyflower	BLM	(CRPR 1B.2)	Y
Kern Plateau bird's-beak	-	(CRPR 1B.3)	N
Kern River evening-primrose	-	(CRPR 1B.3)	Y
King's eyelash grass	-	(CRPR 2.3)	Y
knotted rush	-	(CRPR 2.3)	Y
Lancaster milk-vetch	-	(CRPR 1B.1)	N
Las Animas colubrina	-	(CRPR 2.3)	Y
Latimer's woodland-gilia	-	(CRPR 1B.2)	Y
little-leaf elephant tree	-	(CRPR 2.3)	Y
long-stem evening-primrose	-	(CRPR 2.2)	Y
Mexican hulsea	-	(CRPR 2.3)	Y
Mormon needle grass	-	(CRPR 2.3)	N
Mountain Springs bush lupine	-	(CRPR 1B.3)	Y
Muir's tarplant	-	(CRPR 1B.3)	N
Nevada oryctes	-	(CRPR 2.1)	Y
Nine Mile Canyon phacelia	-	(CRPR 1B.2)	Y
Orcutt's linanthus	-	(CRPR 1B.3)	Y
Orcutt's woody-aster	-	(CRPR 1B.2)	Y
Orocopia sage	BLM	(CRPR 1B.3)	Y
Owen's Valley checkerbloom	BLM	SE (CRPR 1B.1)	Y
Owens Peak lomatium	-	(CRPR 1B.3)	N
Palmer's mariposa-lily	-	(CRPR 1B.2)	N
Panamint daisy	-	(CRPR 1B.2)	Y
Panamint dudleya	-	(CRPR 1B.3)	Y
Panamint Mountains buckwheat	-	(CRPR 1B.3)	Y
Panamint Mountains lupine	-	(CRPR 1B.2)	Y
Panamint rock-goldenrod	-	(CRPR 2.3)	Y
Parish's daisy	FT	(CRPR 1B.1)	N
Parish's desert-thorn	-	(CRPR 2.3)	Y
Parry's monkeyflower	-	(CRPR 2.3)	Y
Parry's spineflower	-	(CRPR 1B.1)	Y

Table IV.7-204
Special-Status Species Occurring in BLM LUPA Outside of Plan Area – Alternative 2

Special-Status Species Present	Federal Status[1]	State Status[2]	Present in BLM LUPA Conservation Lands (Proposed NLCS and Existing and Proposed ACECs)
Pierson's milk-vetch	FT	SE	N
pink fairy-duster	-	(CRPR 2.3)	Y
Pinyon Mesa buckwheat	-	(CRPR 1B.3)	Y
pinyon rockcress	-	(CRPR 2.3)	Y
prairie wedge grass	-	(CRPR 2.2)	Y
pygmy lotus	-	(CRPR 1B.3)	Y
Ripley's aliciella	-	(CRPR 2.3)	Y
Robison's monardella	-	(CRPR 1B.3)	Y
Robbins' nemacladus	-	(CRPR 1B.2)	N
San Bernardino aster	-	(CRPR 1B.2)	Y
San Bernardino milk-vetch	-	(CRPR 1B.2)	Y
San Diego button-celery	FE	SE, (CRPR 1B.1)	Y
sanicle cymopterus	-	(CRPR 1B.2)	N
Santa Rosa Mountains leptosiphon	-	(CRPR 1B.3)	Y
Shockley's milk-vetch	-	(CRPR 2.2)	Y
Shockley's rockcress	-	(CRPR 2.2)	N
slender cottonheads	-	(CRPR 2.2)	Y
slender-leaved ipomopsis	-	(CRPR 2.3)	Y
southern jewel-flower	-	(CRPR 1B.3)	N
Spanish needle onion	BLM	(CRPR 1B.3)	N
spear-leaf matelea	-	(CRPR 2.3)	Y
spiny-hair blazing star	-	(CRPR 2.1)	Y
sticky geraea	-	(CRPR 2.3)	Y
sweet-smelling monardella	-	(CRPR 1B.3)	N
triple –ribbed milk-vetch	FE	(CRPR 1B.2)	Y
Wheeler's dune-broom	-	(CRPR 2.2)	Y
white-bracted spineflower	-	(CRPR 1B.2)	Y
Wildrose Canyon buckwheat	-	(CRPR 1B.3)	Y
yellow ivesia	-	(CRPR 2.3)	N

Notes:
CRPR = California Rare Plant Rank; Y = yes, present; N = not present
[1] Federal Status – FE: Federally Endangered; FT: Federally Threatened; FD: Federally Delisted; FS: Forest Service Sensitive; BLM: Bureau Land Management Sensitive; BCC: Service Bird of Conservation Concern; BGEPA: Bald and Golden Eagle Protection Act.

[2] State Status – SE: California Endangered; ST: California Threatened; SC: California Candidate for listing; CSC: California Species of Concern; FP: Fully Protected; WBWG: Western Bat Working Group species. California Rare Plant Rank (CRPR, formerly known as the CNPS List) - CRPR 1B: Considered rare, threatened, or endangered in California and elsewhere; CRPR 2: Considered rare, threatened, or endangered in California, but more common elsewhere; CRPR 3: Plants which need more information; CRPR 4: Limited distribution – a watch list.

Critical Habitat for Special-status Species

Six Special-status Species have Critical Habitat within BLM Lands outside the Plan Area. Table IV.7-205 shows the total amount of Critical Habitat and the amount within each BLM land designation for each species. No Critical Habitat for the least Bell's vireo would occur within BLM Conservation Designation. The largest portion of Critical Habitat for the remaining species would be within Areas of Critical Environmental Concern, with additional amounts within National Conservation Lands, with both designations providing specific protections for biological resources. Critical Habitat for all species except Coachella Valley fringe-toed lizard and least Bell's vireo would occur within Special Recreation Management Areas, which would also be managed to protect Critical Habitat.

Table IV.7-205
Critical Habitat Within BLM LUPA Conservation Designations for Special-Status Species – Alternative 2

Common Name	Acres of Critical Habitat within BLM LUPA Lands	NLCS (acres)	ACEC (acres)	SRMA (acres)	Total[1] in BLM Designations
Coachella Valley milk-vetch	10,000	4,000	500	1,000	5,500
Inyo California towhee	2,000	10	800	500	1,310
Peninsular Bighorn sheep	317,000	24,000	9,000	200	33,200
Coachella Valley fringe-toed lizard	12,000	2,000	2,000	0	4,000
Desert tortoise	173,000	35,000	99,000	55,000	189,000
Least Bell's vireo	600	0	0	0	0

[1] Includes overlapping designations

Landscape Habitat Linkages and Wildlife Movement Corridors

As detailed in Vol. III.7.13.2.4, Landscape Habitat Linkages and Wildlife Movement Corridors, there are important linkages and corridors North of the Plan Area within the Owens Valley, and Inyo Mountains, and Southwest of the Plan Area within and adjacent to the Coachella Valley. The NCLS lands and ACECs proposed for Alternative 2 offer protection at critical locations within these corridors, providing a benefit to Landscape Habitat Linkages and Wildlife Movement Corridors outside of the Plan Area.

IV.7.3.4.6 CEQA Significance Determination for Alternative 2

Impact BR-1: Siting, construction, decommissioning, and operational activities would result in loss of native vegetation.

Alternative 2 would result in loss of native vegetation that would be an adverse impact to natural communities and the species these communities support. These impacts would be concentrated in the Cadiz Valley and Chocolate Mountains, Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas and would predominantly impact desert scrubs, wetlands, grasslands, and desert outcrop and badlands. The adverse effects of the loss of native vegetation would be avoided and minimized through the implementation of avoidance and minimization CMAs and compensation CMAs established to offset the impacts of Covered Activities. These CMAs would contribute to the overall DRECP conservation strategy, which includes conservation within Reserve Design Lands and a coordinated Monitoring and Adaptive Management Program. Implementation of the CMAs as part of the overall DRECP conservation strategy, plus implementation of Mitigation Measure BR-1a for rare natural communities, would reduce the adverse effects from the loss of native vegetation to a less than significant impact with mitigation.

Impact BR-2: Siting, construction, decommissioning, and operational activities would result in adverse effects to jurisdictional waters and wetlands.

Alternative 2 would result in adverse effects to jurisdictional waters and wetlands. These impacts would occur in saltbush scrub and playa natural communities determined to be jurisdictional and open water areas of the Salton Sea. The adverse effects to jurisdictional waters and wetlands would be avoided and minimized through the implementation existing applicable laws and regulations, through implementation of avoidance and minimization CMAs, and through compensation CMAs established to offset the impacts of Covered Activities. These CMAs would contribute to the overall DRECP conservation strategy, which includes conservation within Reserve Design Lands and a coordinated Monitoring and Adaptive Management Program. Implementation of the CMAs as part of the overall DRECP conservation strategy would reduce the adverse effects to jurisdictional waters and wetlands to a less than significant impact.

Impact BR-3: Siting, construction, decommissioning, and operational activities would result in degradation of vegetation.

Alternative 2 would result in degradation of vegetation that would be an adverse impact to natural communities and the species these communities support. These impacts would be concentrated in the Cadiz Valley and Chocolate Mountains, Pinto Lucerne Valley and Eastern Slopes, and West Mojave and Eastern Slopes subareas and would predominantly impact desert scrubs, wetlands, grasslands, and desert outcrop and badlands. The adverse

effects of vegetation degradation would be avoided and minimized through the implementation of avoidance and minimization CMAs and compensation CMAs established to offset the impacts of Covered Activities. These CMAs would contribute to the overall DRECP conservation strategy, which includes conservation within Reserve Design Lands and a coordinated Monitoring and Adaptive Management Program. Implementation of the CMAs as part of the overall DRECP conservation strategy would reduce the adverse effects of degradation of vegetation to a less than significant impact.

Impact BR-4: Siting, construction, decommissioning, and operational activities would result in loss of listed and sensitive plants; disturbance, injury, and mortality of listed and sensitive wildlife; and habitat for listed and sensitive plants and wildlife.

Alternative 2 would result in an adverse impact to listed and sensitive plants and wildlife and habitat for listed and sensitive plant and wildlife. These impacts would be concentrated in the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, Pinto Lucerne Valley and Eastern Slopes, and West Mojave and Eastern Slopes subareas. Some of the adverse effects to plant and wildlife species and habitat would be minimized through the implementation of CMAs. Under Alternative 2, the DFAs are sited in locations where development of Covered Activities would adversely impact habitat for listed and sensitive wildlife species, including desert tortoise and Mohave ground squirrel. Development in these locations under Alternative 2 has the potential to adversely impact habitat linkage function and isolate populations and fragment habitat in the Plan Area for these species. These adverse impacts cannot be mitigated or otherwise avoided or minimized without modifying the CMAs or DFAs to limit or prohibit development in these sensitive areas, which would modify the purpose and intent of Alternative 2. Therefore, Alternative 2 would result in significant and unmitigable impact to listed and sensitive wildlife and their habitat.

Impact BR-5: Siting, construction, decommissioning, and operational activities could result in loss of nesting birds (violation of the federal Migratory Bird Treaty Act and California Fish and Game Code Sections 3503, 3503.5, 3511, and 3513).

Alternative 2 has the potential to result in an adverse impact resulting from the loss of nesting birds. These impacts have the potential to occur anywhere Covered Activities are implemented. This potential adverse would be avoided and minimized through the implementation of avoidance and minimization CMAs developed to comply with existing applicable laws and regulations related to nesting birds. Implementation of the CMAs would reduce the potential adverse effects of the loss of nesting birds to a less than significant impact.

Impact BR-6: Siting, construction, decommissioning, and operational activities would adversely affect habitat linkages and wildlife movement corridors, the movement of fish, and native wildlife nursery sites.

Alternative 2 would result in adverse impacts to habitat linkages and wildlife movement corridors. These impacts to habitat linkages and movement of migratory birds would be concentrated in the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas; however, the DFAs in Alternative 2 are located in important linkage areas such that development of Covered Activities in these key location would have an adverse impact on wildlife movement. The potential adverse effects to habitat linkages and wildlife movement would be partially minimized through the implementation of the DRECP conservation strategy, including the reserve design envelope. However, Alternative 2 would result in impacts of habitat fragmentation and population isolation that cannot be entirely offset through these measures. These adverse impacts cannot be mitigated or otherwise avoided or minimized without modifying the CMAs or DFAs to limit or prohibit development in these sensitive areas, which would modify purpose and intent of Alternative 2. Therefore, Alternative 2 would result in significant and unmitigable impacts to habitat linkages and wildlife movement.

Impact BR-7: Siting, construction, decommissioning, and operational activities would result in habitat fragmentation and isolation of populations of listed and sensitive plants and wildlife.

Alternative 2 would have the potential to result in adverse impacts of habitat fragmentation and population isolation. The potential adverse effects of habitat fragmentation and population isolation would partially avoided and minimized through the implementation of the DRECP conservation strategy, including the reserve design envelope and the Monitoring and Adaptive Management Program. Additionally, impacts of habitat fragmentation and population isolation would be avoided and minimized through requiring renewable energy development to occur within DFAs and through the implementation of avoidance and minimization CMAs and compensation CMAs established to offset the impacts of Covered Activities. Implementation of the DRECP and the CMAs as part of the overall DRECP conservation strategy would reduce the adverse effects of habitat fragmentation and population isolation to a less than significant impact; however, impacts to wildlife movement and habitat linkages under Alternative 2 would be significant and unavoidable.

Impact BR-8: Construction of generation facilities or transmission lines would result in increased predation of listed and sensitive wildlife species.

Alternative 2 would result in an increase in predator populations in the Plan Area, which would adversely affect susceptible Covered Species. As part of the overall DRECP conservation strategy, implementation of a Common Raven Management Plan (AM-PW-6) would reduce the adverse effects to Covered Species to a less than significant impact.

Alternative 2 would result in an increase in predator populations in the Plan Area, which would adversely affect susceptible Covered Species. As part of the overall DRECP conservation, strategy implementation of a Common Raven management actions (AM-PW-6) would reduce the adverse effects to Non-Covered Species to a less than significant impact.

Impact BR-9: Operational activities would result in avian and bat injury and mortality from collisions, thermal flux or electrocution at generation and transmission facilities.

Alternative 2 would result in loss of avian and bat Covered Species that would be an adverse impact to avian and bat populations. These impacts would be concentrated in the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, Pinto Lucerne Valley and Eastern Slopes, and West Mojave and Eastern Slopes subareas. The adverse effects of avian and bat injury and mortality would be avoided and minimized through the implementation of avoidance and minimization CMAs and compensation CMAs established to offset the impacts of Covered Activities. These CMAs would contribute to the overall DRECP conservation strategy, which includes conservation within Reserve Design Lands and a coordinated Monitoring and Adaptive Management Program. Implementation of the CMAs as part of the overall DRECP conservation strategy would reduce the adverse effects to a less than significant impact. The level of impact on avian and bat Non-Covered Species would be as discussed for the Covered Species.

IV.7.3.4.7 Comparison of Alternative 2 with Preferred Alternative

Chapter IV.27 presents a comparison of all action alternatives and the No Action Alternative across all disciplines. This section summarizes the comparison of Alternative 2 with the Preferred Alternative.

IV.7.3.4.7.1 Alternative 2 Compared with Preferred Alternative for Plan-Wide DRECP

Alternative 2 would allow renewable energy development in nearly 2.5 million acres of DFAs (11% of the Plan Area) as compared to the approximately 2 million acres of DFAs (9% of the Plan Area) under the Preferred Alternative. Under Alternative 2, 78% of the DFAs are characterized by low terrestrial intactness as compared to the 87% of the DFAs in the Preferred Alternative. Alternative 2 and the Preferred Alternative would result in

roughly equivalent conservation acreage within Reserve Design Lands; however, the BLM LUPA conservation designations vary considerably between these alternatives. Alternative 2 BLM LUPA conservation designations would include 18% ACEC designations, 82% NLCS designations, and 0% wildlife allocation designations, whereas the Preferred Alternative BLM LUPA conservation designations would include 32% ACEC designations, 65% NLCS designations, and 3% wildlife allocation designations. The following provides a comparative analysis for specific biological resources.

Impacts to Natural Communities

A summary of the differences between effects under this Alternative and the Preferred Alternative is provided below.

California forest and woodlands

Overall, approximately 300 acres of California forest and woodlands would be impacted under Alternative 2, compared to 100 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are fewer impacts from solar in the West Mojave and Eastern Slopes subarea. In the Pinto Lucerne Valley and Eastern Slopes subarea, there are more impacts from solar, wind, and transmission.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 1,000 acres of chaparral and coastal scrubs would be impacted under Alternative 2, compared to 2,000 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts from transmission and wind in the Pinto Lucerne Valley and Eastern Slopes subarea, but fewer impacts from wind. In the West Mojave and Eastern Slopes there are fewer impacts from solar and transmission development under Alternative 2 compared to the Preferred Alternative.

Desert conifer woodlands

Overall, approximately 1,000 acres of desert conifer woodlands would be impacted under both Alternative 2 and the Preferred Alternative. Compared to the Preferred Alternative, there are slightly greater impacts from solar and wind in the Pinto Lucerne Valley and Eastern Slopes subarea. In the West Mojave and Eastern Slopes there are fewer impacts from solar and transmission development under Alternative 2 compared to the Preferred Alternative.

Desert outcrop and badlands

Overall, approximately 9,000 acres of desert outcrop and badlands would be impacted under Alternative 2, compared to 10,000 acres under the Preferred Alternative. The most

substantial differences are greater impacts in the Imperial Borrego Valley under Alternative 2 and fewer impacts in the Cadiz Valley and Chocolate Mountains subarea. In both subareas, the difference in acreage of solar impact is more substantial than for other technology types.

Desert scrubs

Overall, approximately 92,000 acres of desert scrubs would be impacted under both Alternative 2 and the Preferred Alternative. Compared to the Preferred Alternative, the biggest differences are in fewer impacts in the Cadiz Valley and Chocolate Mountains subarea under Alternative 2 compared to the Preferred Alternative and more impacts in the Pinto Lucerne Valley and Eastern Slopes subarea.

Dunes

Like the Preferred Alternative, impacts to dune communities would be minimized under Alternative 2 since application of the CMAs would require that dune communities be avoided to the maximum extent feasible in DFAs. In addition, CMA application would prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

Grasslands

Overall, approximately 5,000 acres of grasslands would be impacted under Alternative 2, compared to 6,000 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are fewer impacts in the Cadiz Valley and Chocolate Mountains, Mojave and Silurian Valley, and West Mojave and Eastern Slopes subareas and greater impacts in the Pinto Lucerne Valley and Eastern Slopes subarea. Although there are more impacts from solar under the Preferred Alternative there are greater impacts to grasslands from wind under Alternative 2.

Riparian

Like the Preferred Alternative, impacts to riparian communities would be avoided under Alternative 2 since application of the CMAs would require that riparian communities be avoided to the maximum extent feasible in DFAs. In addition, setbacks from riparian communities would be required that range from 200 feet for Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub to 0.25 mile for Southwestern North American riparian evergreen and deciduous woodland and Southwestern North American riparian/wash scrub.

Wetlands

Overall, approximately 9,000 acres of California forest and woodlands would be impacted under Alternative 2, compared to 10,000 acres under the Preferred Alternative. Like the Preferred Alternative, impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep would not occur under Alternative 2 since application of the CMAs would require that these communities be avoided to the maximum extent feasible in DFAs, including a 0.25-mile setback.

Compared to the Preferred Alternative, there are greater impacts from in the Mojave and Silurian Valley, Panamint Death Valley, and Owens River Valley subareas under Alternative 2, but fewer or about the same impacts in all other subareas. The largest difference would be the less impacts from solar development in the Cadiz Valley and Chocolate Mountains subarea under Alternative 2.

Conservation of Natural Communities

A summary of the differences between conservation under this Alternative and the Preferred Alternative is provided below.

California forest and woodlands

Overall, approximately 65,000 acres (44%) of California forest and woodlands would be conserved under Alternative 2, compared to 62,000 acres (41%) under the Preferred Alternative. Although conservation between these subareas is similar overall, the distribution of conservation varies. Compared to the Preferred Alternative, there is more California forest and woodland areas conserved in the West Mojave and Eastern Slopes subarea from BLM LUPA conservation designations. There is more acreage conserved in BLM LUPA conservation designations in the Pinto Lucerne Valley and Eastern Slopes subarea under the Preferred Alternative, but less conservation in Conservation Planning Areas.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 34,000 acres (31%) of chaparral and coastal scrubs would be conserved under Alternative 2, compared to 31,000 acres (28%) under the Preferred Alternative. Compared to the Preferred Alternative, there is more conserved acreage of chaparral and coastal scrubs in the Pinto Lucerne Valley and Eastern Slopes, West Mojave and Eastern Slopes, and Mojave and Silurian Valley subareas. There is more conserved acreage within the Conservation Planning Areas under Alternative 2, as compared with the Preferred Alternative.

Desert conifer woodlands

Overall, approximately 190,000 acres (66%) of desert conifer woodlands would be conserved under Alternative 2, compared to 186,000 acres (65%) under the Preferred Alternative. Compared to the Preferred Alternative, there is more conservation in the West Mojave and Eastern Slopes, Kingston and Funeral Mountains, and Pinto Valley and Eastern Slopes subareas.

Desert outcrop and badlands

Overall, approximately 1,339,000 acres (83%) of desert outcrop and badlands would be impacted under Alternative 2, compared to 1,295,000 acres (80%) under the Preferred Alternative. Compared to the Preferred Alternative, there is greater conservation of this general community in the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, Kingston and Funeral Mountains, Mojave and Silurian Valley, Piute Valley and Sacramento Mountains, and Providence and Bullion Mountains subareas, with the greatest difference in the Piute Valley and Sacramento Mountains subarea. There is less conserved acreage in the Pinto Lucerne Valley and Eastern Slopes subarea.

Desert scrubs

Overall, approximately 9,917,000 acres (75%) of desert scrubs would be conserved under Alternative 2, compared to 9,729,000 acres (74%) under the Preferred Alternative. Two of the subareas in the Plan Area have less conservation of desert scrubs under Alternative 2 compared to the Preferred Alternative—Owens River Valley and West Mojave and Eastern Slopes subareas. Of the remaining subareas with more conservation under Alternative 2, the Kingston and Funeral Mountains subarea has the largest difference between the two alternatives.

Dunes

Overall, approximately 223,000 acres (79%) of dunes would be conserved under Alternative 2, compared to 209,000 acres (74%) under the Preferred Alternative. There is more conservation of dunes under Alternative 2 in the Imperial Borrego Valley, Kingston and Funeral Mountains, Mojave and Silurian Valley, and Pinto Lucerne Valley and Eastern Slopes subareas.

In addition to conservation, impacts to dune communities would be minimized under both alternatives since application of the CMAs would require that dune communities be avoided to the maximum extent feasible in DFAs. In addition, CMA application would prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

Grasslands

Overall, approximately 53,000 acres (22%) of grasslands would be conserved under Alternative 1, compared to 54,000 acres (22%) under the Preferred Alternative. Although conservation between these subareas is similar overall, the distribution of conservation varies. Compared to the Preferred Alternative, there is more conservation of grasslands in the West Mojave and Eastern Slopes subarea, but less in the Pinto Lucerne Valley and Eastern Slopes subarea.

Riparian

Overall, approximately 713,000 (72%) of riparian would be conserved under Alternative 2, compared to 715,000 acres (72%) under the Preferred Alternative. The most substantial differences between the alternatives are much less conservation in BLM LUPA conservation designations in the Imperial Borrego Valley subarea and much more conservation in the Piute Valley and Sacramento Mountains subarea. The other subareas with greater conservation under Alternative 2 are the Cadiz Valley and Chocolate Mountains, Kingston and Funeral Mountains, Mojave and Silurian Valley, Pinto Lucerne Valley and Eastern Slopes, and West Mojave and Eastern Slopes subareas.

In addition to conservation, impacts to riparian communities would be avoided under both alternatives since application of the CMAs would require that riparian communities be avoided to the maximum extent feasible in DFAs. In addition, setbacks from riparian communities would be required that range from 200 feet for Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub to 0.25 mile for Southwestern North American riparian evergreen and deciduous woodland and Southwestern North American riparian/wash scrub.

Wetlands

Overall, approximately 474,000 acres (55%) of wetlands would be conserved under Alternative 2, compared to 433,000 acres (50%) under the Preferred Alternative. There is more conserved acreage of wetlands primarily in the Providence and Bullion Mountains subarea. Additional subareas which support more conservation under Alternative 2 include the Kingston and Funeral Mountains, Cadiz Valley and Chocolate Mountains, and West Mojave and Eastern Slopes. All of the other subareas have fewer or approximately the same conserved acres of wetland communities.

In addition to conservation, impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep would not occur under both alternatives since application of the CMAs would require that these communities be avoided to the maximum extent feasible in DFAs, including a 0.25-mile setback.

Impacts to Covered Species

Overall, there are fewer impacts to suitable habitat for Covered Species under Alternative 2 compared to the Preferred Alternative. Less suitable habitat for Covered Species would impacted under Alternative 2 in three subareas: Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, and West Mojave and Eastern Slopes subareas with the greatest difference in the Cadiz Valley and Chocolate Mountains subarea.

More suitable habitat for Covered Species would be impacted under Alternative 2 compared to the Preferred Alternative for one of the four amphibian/reptile species—Agassiz's desert tortoise. Impacts to desert tortoise important areas are greater under Alternative 2 compared with the Preferred Alternative. Most of the covered bird species have less impacts to their suitable habitat under Alternative 2 including some birds associated with riparian/wetland areas (i.e., California black rail, southwestern willow flycatcher, western tricolored blackbird) and birds associated with other habitats (California condor, greater sandhill crane, burrowing owl, mountain plover, Swainson's hawk). Suitable habitat for covered fish species Owens pupfish and Owens tui chub would have greater impacts, desert pupfish would have less impacts under Alternative 2, but neither would differ by more than 50 acres for any species. Mohave tui chub would not be impacted under either alternative.

Suitable habitat for bighorn sheep (both mountain and inter-mountain), Mohave ground squirrel, and pallid bat would be impacted more under Alternative 2 than under the Preferred Alternative. Alternative 2 would impact more than twice as much Mohave ground squirrel important areas than would the Preferred Alternative. Four of the ten covered plant species would have greater impacts under Alternative 2 compared to the Preferred Alternative, including Barstow woolly sunflower, Little San Bernardino Mountains linanthus, Owens Valley checkerbloom, and Parish's daisy. CMA application would avoid and minimize impacts to suitable habitat for Covered Species under both alternatives as described in Section IV.7.3.3.1.1; however, under Alternative 2, the DFAs are sited in remote and sensitive locations such that development of Covered Activities in these locations would result in adverse impacts that cannot be mitigated or otherwise avoided or minimized.

Impacts to Non-Covered Species

Overall, Alternative 2 could result in greater potential impacts to suitable habitat for Non-Covered Species as compared to the Plan-wide Preferred Alternative.

More suitable habitat for Non-Covered Species has the potential to be impacted under the Preferred Alternative compared to the Alternative 2 for all of the invertebrates evaluated. However, under both alternatives, application of CMAs and general siting design would

further protect spring-, cave-, and dune-restricted species by avoiding renewable development in these habitats. More suitable habitat for Non-Covered Species could be impacted under Alternative 2 for the majority of amphibian/reptile species compared to the Preferred Alternative. of the majority of the bird Non-Covered Species would have greater potential impacts to suitable habitat under the Preferred Alternative as compared to Alternative 2. Both of the fish Non-Covered species could potentially have greater impacts under Alternative 2; however, implementation of CMAs would preclude development within the habitat for the fish, thus further protecting these species under either Alternative. Greater potential impacts to suitable habitat for about half of the mammal Non-Covered Species would occur under Alternative 2 as compared to the Preferred Alternative. The majority of plant Non-Covered Species could have greater potential impacts under Alternative 2 compared to the Preferred Alternative.

Conservation of Covered Species

Overall, there is greater conservation of Covered Species habitat under Alternative 2 compared to the Preferred Alternative. There is more conservation in both BLM LUPA conservation designations and Conservation Planning Areas under Alternative 2. Compared to the Preferred Alternative there is greater conservation of suitable habitat for Covered Species in the Cadiz Valley and Eastern Slopes, Kingston and Funeral Mountains, Mojave and Silurian Valley, Panamint Death Valley, Pinto Lucerne Valley and Eastern Slopes, Piute Valley and Sacramento Mountains, and Providence and Bullion Mountains subareas under Alternative 2.

More suitable habitat for the following Covered Species would be conserved under the Preferred Alternative compared to Alternative 2: Gila woodpecker, Owens pupfish, Owens tui chub, Mohave ground squirrel, Barstow woolly sunflower, Mojave monkeyflower, Owens Valley checkerbloom, and Parish's daisy. For the remaining species, more suitable habitat would be conserved under Alternative 2.

In addition to conservation of suitable habitat for Covered Species, compensation CMAs would offset habitat loss for all Covered Species under both alternatives. CMAs also require avoidance and minimization of Covered Species in DFAs and CMAs would be applied in the Reserve to benefit Covered Species.

Impacts to the Desert Linkage Network

Overall, more acres of the desert linkage network would be impacted under Alternative 2 compared to the Preferred Alternative. There are more DFAs under Alternative 2 compared to the Preferred Alternative in linkages in the Chocolate Mountains in the Imperial Borrego Valley subarea, in the San Bernardino Mountains, in the Fry Valley area, Granite Mountains, Gray Butte Field, area west of Fremont Peak, and Indian Wells. Under Alternative 2, the

DFAs are sited in remote and sensitive locations such that development of Covered Activities in these locations, absent CMAs to protect these linkages or removing DFAs from these locations, would result in adverse impacts to habitat linkages and wildlife movement that cannot be mitigated or otherwise avoided or minimized.

Conservation of the Desert Linkage Network

Overall, there is greater conservation of the desert linkage network under the Preferred Alternative compared to Alternative 2. Some linkage areas with more conservation under the Preferred Alternative compared to Alternative 2 include: the Providence and Bullion Mountains subarea and along East Mesa in the Imperial Borrego Valley, near the Twentynine Palms Air Corps Base, in the Lucerne Valley, south of Johnson Valley and south into the Black Mountain area, Gray Butte Field area north of the California aqueduct, in the Mojave Desert near Fremont Peak, and in Indian Wells Valley. In addition to conservation of the desert linkage network, CMAs provide for the avoidance and minimization of certain linkages in the DFAs.

Operational Impacts

The operation of renewable energy would result in the degradation of vegetation through the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants as well as the disturbance of wildlife due to noise, predator avoidance behavior, and light and glare. Alternative 2 would result in a smaller amount of terrestrial operational impacts when compared with the Preferred Alternative. Additionally, the distribution of vegetation degradation and wildlife disturbance as a result of operational impacts would be distributed differently under the Preferred Alternative and Alternative 2. The degradation of vegetation and disturbance of wildlife during operations in Alternative 2 would be more heavily distributed in the Pinto Lucerne Valley and Eastern Slopes subarea than in the Preferred Alternative. The Preferred Alternative would also have a larger distribution of impacts in the Cadiz Valley and Chocolate Mountains subarea than Alternative 2. Both the Preferred Alternative and Alternative 2 would direct renewable energy development to DFAs that are designed to minimize impacts to biological resources and both would implement CMAs to avoid, minimize, and compensate for operational impacts from vegetation degradation and wildlife disturbance.

Alternative 2 would result in an estimated 4,800 more bird collisions and 22,300 more bat collision with wind turbines than the Preferred Alternative. However, this would result in a 16,036 acres reduction in solar development, with a proportional decrease in the associated operational impacts. Alternative 2 would result in a reduction of operational impacts from solar in all subareas. However, impacts from transmission would be considerably lower in Imperial Borrego Valley, and Cadiz and Chocolate Mountain

subareas, while impacts in West Mojave and Eastern Slopes would be greater. Migratory Bird impacts across most of the plan area are likely to be greater because of the overall increase in wind impacts.

IV.7.3.4.7.2 Alternative 2 Compared with Preferred Alternative for the BLM Land Use Plan Amendment

Alternative 2 would allow renewable energy development in approximately 718,000 acres of DFAs on BLM-administered lands as compared to the approximately 367,000 acres of DFAs on BLM-administered lands under the Preferred Alternative. Alternative 2 would designate 5.2 million acres of BLM LUPA conservation designations on BLM-administered lands, including 5.1 million acres of NLCS, 77,000 acres of ACEC, and 700 acres of wildlife allocation, whereas the Preferred Alternative would designate 4.9 million acres of BLM LUPA conservation designations on BLM-administered lands, including 3.5 million acres of NLCS, 1.4 million acres of ACEC, and over 18,000 acres of wildlife allocation under the Preferred Alternative. The following provides a comparative analysis for specific biological resources.

Impacts to Natural Communities

A summary of the differences between effects under this Alternative and the Preferred Alternative is provided below.

California forest and woodlands

Overall, approximately 200 acres of California forest and woodlands would be impacted under Alternative 2 for the BLM LUPA, compared to 40 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts from solar, wind, and transmission in the Pinto Lucerne Valley and Eastern Slopes subarea.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 200 acres of chaparral and coastal scrubs would be impacted under Alternative 2 for the BLM LUPA, compared to 300 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are fewer impacts from solar in the Pinto Lucerne Valley and Eastern Slopes subarea and from solar and transmission in the West Mojave and Eastern Slopes subarea.

Desert conifer woodlands

Overall, approximately 300 acres of desert conifer woodlands would be impacted under Alternative 2, compared to 400 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts from solar and wind development in the

Pinto Lucerne Valley and Eastern Slopes. However, there are fewer impacts from transmission in the Pinto Lucerne Valley and Eastern Slopes and from solar and wind in the West Mojave and Eastern Slopes subarea.

Desert outcrop and badlands

Overall, approximately 7,000 acres of desert outcrop and badlands would be impacted under Alternative 2 for the BLM LUPA, compared to 8,000 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts in the Imperial Borrego Valley, Pinto Lucerne Valley and Eastern Slopes, and Providence and Bullion Mountains subareas. However, the total is less for Alternative 2 because there are much fewer impacts in the Cadiz Valley and Chocolate Mountains subarea, mostly from solar and transmission development, and also fewer impacts in other subareas.

Desert scrubs

Overall, approximately 53,000 acres of desert scrubs would be impacted under Alternative 2 for the BLM LUPA, compared to 46,000 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts in the Imperial Borrego Valley, Mojave and Silurian Valley, Panamint Death Valley, Pinto Lucerne Valley and Eastern Slopes, Providence and Bullion Valley, and West Mojave and Eastern Slopes subareas, with the greatest difference in the West Mojave and Eastern Slopes subarea. However, there are far fewer impacts in the Cadiz Valley and Chocolate Mountains subarea.

Dunes

Like the Preferred Alternative, impacts to dune communities would be minimized under Alternative 2 for the BLM LUPA since application of the CMAs would require that dune communities be avoided to the maximum extent feasible in DFAs. In addition, CMA application would prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

Grasslands

Overall, approximately 500 acres of grasslands would be impacted under both Alternative 2 and the Preferred Alternative for the BLM LUPA. Compared to the Preferred Alternative, there are fewer impacts in the Cadiz Valley and Chocolate Mountains and West Mojave and Eastern Slopes subareas, mostly from solar development. However, there are greater impacts in the Pinto Lucerne Valley and Eastern Slopes subarea.

Riparian

Like the Preferred Alternative, impacts to riparian communities would be avoided under Alternative 2 for the BLM LUPA since application of the CMAs would require that riparian communities be avoided to the maximum extent feasible in DFAs. In addition, setbacks from riparian communities would be required that range from 200 feet for Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub to 0.25 mile for Southwestern North American riparian evergreen and deciduous woodland and Southwestern North American riparian/wash scrub.

Wetlands

Overall, approximately 4,000 acres of wetlands would be impacted under both Alternative 2 and the Preferred Alternative for the BLM LUPA. Like the Preferred Alternative, impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep would not occur under Alternative 2 since application of the CMAs would require that these communities be avoided to the maximum extent feasible in DFAs, including a 0.25-mile setback.

Conservation of Natural Communities for the BLM LUPA

A summary of the differences between conservation under this Alternative and the Preferred Alternative is provided below.

California forest and woodlands

Overall, approximately 39,000 acres (87%) of California forest and woodlands would be conserved under Alternative 2 for BLM LUPA, compared to 38,000 acres (86%) under the Preferred Alternative. Compared to the Preferred Alternative, there is more conservation of California forest and woodlands in NLCS and ACECs and less conservation in Wildlife Allocation areas under Alternative 2. There is also more conservation in the West Mojave and Eastern Slopes subarea under Alternative 2, and less conservation in the Pinto Lucerne Valley and Eastern Slopes subarea.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 15,000 acres (81%) of chaparral and coastal scrubs would be conserved under Alternative 2, compared to 11,000 acres (62%) under the Preferred Alternative for the BLM LUPA. Compared to the Preferred Alternative, there is more conserved acreage of chaparral and coastal scrubs in the Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subarea. Overall, there is less

conserved acreage in ACEC areas, no conserved area in wildlife allocations, but more conservation in NLCS.

Desert conifer woodlands

Overall, approximately 43,000 acres (87%) of desert conifer woodlands would be conserved under Alternative 2, compared to 41,000 acres (83%) under the Preferred Alternative for the BLM LUPA. Compared to the Preferred Alternative, there is less conservation in ACECs in the Pinto Lucerne and Eastern Slopes and Kingston and Funereal Mountains subareas. There is more conserved acreage within Alternative 2 NLCS areas in the Pinto Lucerne Valley and Eastern Slopes, Kingston and Funeral Mountains, and West Mojave and Eastern Slopes subareas.

Desert outcrop and badlands

Overall, approximately 1,061,000 acres (88%) of desert outcrop and badlands would be conserved under Alternative 2, compared to 1,017,000 acres (85%) under the Preferred Alternative for the BLM LUPA. Although conservation between these subareas is similar overall, the distribution of conservation varies substantially. Compared to the Preferred Alternative, there is greater conservation of this general community in NLCS and wildlife allocations in Alternative 2. Specifically, greater conservation of desert outcrop and badlands occur within the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, Mojave and Silurian Valley, Piute Valley and Sacramento Mountains, and Providence and Bullion Mountains subareas, with the greatest difference in the Piute Valley and Sacramento Mountains subarea.

Desert scrubs

Overall, approximately 6,017,000 acres (86%) of desert scrubs would be conserved under Alternative 2, compared to 5,835,000 acres (83%) under the Preferred Alternative for the BLM LUPA. Eight of the ten subareas in the Plan Area have greater conservation of desert scrubs under Alternative 2 compared to the Preferred Alternative. The biggest difference is in the Providence and Bullion Mountains subarea, but there is also over 30,000 acres more conservation of desert scrubs in the Mojave and Silurian Valley and Pinto Lucerne Valley and Eastern Slopes subareas. Of the remaining subareas with less conservation under Alternative 2, the West Mojave and Eastern Slopes subarea has the largest difference between the two alternatives.

Dunes

Overall, approximately 101,000 acres (79%) of dunes would be conserved under Alternative 2, compared to 89,000 acres (70%) under the Preferred Alternative for the

BLM LUPA. There is more conservation in NLCS areas under Alternative 2, but less in ACECs. Compared to the Preferred Alternative, there is more conservation of dunes in most subareas, particularly the Pinto Lucerne Valley and Eastern Slopes, Mojave and Silurian Valley, Imperial Borrego Valley, and Kingston and Funeral Mountains subareas.

In addition to conservation, impacts to dune communities would be minimized under both alternatives since application of the CMAs would require that dune communities be avoided to the maximum extent feasible in DFAs. In addition, CMA application would prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

Grasslands

Overall, approximately 22,000 acres (76%) of grasslands would be conserved under Alternative 2, compared to 23,000 acres (80%) under the Preferred Alternative for the BLM LUPA. Compared to the Preferred Alternative, there is more or equal conservation of grasslands in most subareas with conservation, except the Pinto Lucerne Valley and Eastern Slopes subarea. Overall, there is less conservation of grasslands in ACEC areas and wildlife allocations, and more in NLCS area under Alternative 2.

Riparian

Overall, approximately 512,000 acres (79%) of dunes would be conserved under Alternative 2, compared to 515,000 acres (80%) under the Preferred Alternative for the BLM LUPA. The most substantial difference between the alternatives is much less conservation in BLM LUPA conservation designations in the Imperial Borrego Valley subarea, and substantially more conservation in the Piute Valley and Sacramento Mountains.

In addition to conservation, impacts to riparian communities would be avoided under both alternatives since application of the CMAs would require that riparian communities be avoided to the maximum extent feasible in DFAs. In addition, setbacks from riparian communities would be required that range from 200 feet for Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub to 0.25 mile for Southwestern North American riparian evergreen and deciduous woodland and Southwestern North American riparian/wash scrub.

Wetlands

Overall, approximately 217,000 acres (73%) of wetlands would be conserved under Alternative 2, compared to 184,000 acres (62%) under the Preferred Alternative. There is substantially more conserved acreage of wetlands primarily in the Kingston and Funeral Mountains and Providence and Bullion Mountains subareas. There are fewer wetland

conservation acres under Alternate 2 in the West Mojave and Eastern Slopes, Mojave and Silurian Valley, and Panamint Death Valley subareas. Overall, there are fewer conserved acres in ACEC areas and more conservation in NLCS and wildlife allocations.

In addition to conservation, impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep would not occur under both alternatives since application of the CMAs would require that these communities be avoided to the maximum extent feasible in DFAs, including a 0.25-mile setback.

Impacts to Covered Species Habitat

Overall, there are greater impacts to suitable habitat for Covered Species under Alternative 2 compared to the Preferred Alternative for the BLM LUPA. The only subareas where less suitable habitat for Covered Species would impacted under Alternative 2 would be the Cadiz Valley and Chocolate Mountains and Owens River Valley subareas. Less suitable habitat for Covered Species would be impacted under Alternative 2 compared to the Preferred Alternative except for the following species:, flat-tailed horned lizard, Mojave fringed-toed lizard, Tehachapi slender salamander, California black rail, greater sandhill crane, mountain plover, southwestern willow flycatcher, Swainson's hawk, tricolored blackbird, California leaf-nosed bat, alkali mariposa-lily, and Bakersfield cactus. CMA application would avoid and minimize impacts to suitable habitat for Covered Species under both alternatives as described in Section IV.7.3.3.1.1; however, under Alternative 2, the DFAs are sited in remote and sensitive locations such that development of Covered Activities in these locations would result in adverse impacts that cannot be mitigated or otherwise avoided or minimized.

Impacts to Non-Covered Species Habitat

Overall, Alternative 2 could result in greater potential impacts to suitable habitat for Non-Covered Species as compared to the Plan-wide Preferred Alternative.

More suitable habitat for the spring- and cave-restricted invertebrate Non-Covered Species has the potential to be impacted under Alternative 2 compared to the Preferred Alternative. The analysis indicates that there could be more impacts to dune habitats under the Preferred Alternative, however, application of CMA's and general siting design under either Alternative, would further protect spring-, cave-, and dune-restricted species by avoiding renewable development in these habitats. More suitable habitat for Non-Covered Species could be impacted under Alternative 2 for all of the amphibian/reptile species compared to the Preferred Alternative. All of the bird Non-Covered Species have greater potential impacts to suitable habitat under Alternative 2 as compared to the Preferred Alternative. Both of the fish Non-Covered species could potentially have greater impacts under Alternative 2; however, implementation of CMAs would preclude development

within habitat for these fish, thus further protecting these species under either Alternative. Greater potential impacts to suitable habitat for the majority of mammal Non-Covered Species could occur under Alternative 2 as compared to the Preferred Alternative. The majority of plant Non-Covered Species could have greater potential impacts under Alternative 2 compared to the Preferred Alternative.

Conservation of Covered Species Habitat

Overall, there is more conservation of Covered Species habitat under Alternative 2 compared to the Preferred Alternative. There is much less conservation in ACECs and wildlife allocations under Alternative 2, but more conservation in NLCS areas. The only subarea with wildlife allocations under the Preferred Alternative is the West Mojave and Eastern Slopes subarea, but wildlife allocations are included in both this subarea and the Cadiz Valley and Chocolate Mountains subarea under Alternative 2. There is greater conservation of Covered Species habitat in the Cadiz Valley and Chocolate Mountains, Kingston and Funeral Mountains, Mojave and Silurian Valley, Panamint Death Valley, Pinto Lucerne Valley and Eastern Slopes, Piute Valley and Sacramento Mountains, and Providence and Bullion Mountains subareas under Alternative 2 compared to the Preferred Alternative. The greatest difference between alternatives among the remaining subareas would be in the Imperial Borrego Valley subarea.

More suitable habitat would be conserved under Alternative 2 compared to the Preferred Alternative for all covered reptiles and amphibians, 13 of 15 birds, 1 fish (desert pupfish), 5 of 6 mammals, and 6 of 10 plants. Conservation of desert pupfish would only be minimally higher under Alternative 2.

In addition to conservation of suitable habitat for Covered Species, compensation CMAs would offset habitat loss for all Covered Species under both alternatives. CMAs also require avoidance and minimization of Covered Species in DFAs and CMAs would be applied in the Reserve to benefit Covered Species.

Impacts to the Desert Linkage Network

Overall, more acres of the desert linkage network would be impacted under Alternative 2 compared to the Preferred Alternative for the BLM LUPA. There are more DFAs under Alternative 2 compared to the Preferred Alternative in linkages in the Chocolate Mountains in the Imperial Borrego Valley subarea, in the San Bernardino Mountains, in the Fry Valley area, area west of Fremont Peak, and Indian Wells. Under Alternative 2, the DFAs are sited in remote and sensitive locations such that development of Covered Activities in these locations, absent CMAs to protect these linkages or removing DFAs from these locations, would result in adverse impacts to habitat linkages and wildlife movement that cannot be mitigated or otherwise avoided or minimized.

Operational Impacts

The operation of renewable energy would result in the degradation of vegetation through the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants as well as the disturbance of wildlife due to noise, predator avoidance behavior, and light and glare. Alternative 2 would result in a larger amount of terrestrial operational impacts when compared with the Preferred Alternative. Additionally, the distribution of vegetation degradation and wildlife disturbance as a result of operational impacts would be distributed differently under the Preferred Alternative and Alternative 2. The degradation of vegetation and disturbance of wildlife during operations in Alternative 2 would be more heavily distributed in the West Mojave and Eastern Slopes and Imperial Borrego Valley subareas, whereas the Preferred Alternative would distribute more terrestrial operational impacts in the Cadiz Valley and Chocolate Mountains subarea. Both the Preferred Alternative and Alternative 2 would direct renewable energy development to DFAs that are designed to minimize impacts to biological resources and both would implement CMAs to avoid, minimize, and compensate for operational impacts from vegetation degradation and wildlife disturbance.

Operational impacts of Alternative 2 on bird and bat Covered Species would result in an estimated 3,400 more bird collisions and 15,300 more bat collision with wind turbines than the Preferred Alternative. Differences would be especially marked in Pinto and Lucerne Valley and Mojave and Silurian Valley subareas with an expected 1,600 more collisions per year. In these subareas, golden eagle may be disproportionately affected by wind development in BLM managed DFAs. Solar development in Imperial Borrego Valley would increase by 7,268 acres while impacts in Cadiz and Chocolate Mountains would decrease by a similar quantity; similar species are likely to be affected in each region.

Conservation of the Desert Linkage Network

Overall, there is greater conservation of the desert linkage network under the Preferred Alternative compared to Alternative 2. Some linkage areas with more conservation under the Preferred Alternative compared to Alternative 2 include: along East Mesa in the Imperial Borrego Valley, near the Twentynine Palms Air Corps Base, in the Lucerne Valley, south of Johnson Valley and south into the Black Mountain area, in the Mojave Desert near Fremont Peak, and in Indian Wells Valley. In addition to conservation of the desert linkage network, CMAs provide for the avoidance and minimization of certain linkages in the DFAs.

IV.7.3.4.7.3 Alternative 2 Compared with Preferred Alternative for NCCP

The impacts of the NCCP for Alternative 2 are the same as those defined in Section IV.7.3.2.1 for the Plan-wide analysis. As a result, the comparison of Alternative 2 with the Preferred Alternative for the NCCP is the same as described above for Plan-wide DRECP.

IV.7.3.4.7.4 Alternative 2 Compared with Preferred Alternative for the GCP

Alternative 2 would allow renewable energy development on approximately 1.7 million acres of DFAs on nonfederal lands as compared to the approximately 1.6 million acres of DFAs on nonfederal lands under the Preferred Alternative. Under Alternative 2, the Reserve Design Lands would include approximately 2.6 million acres on nonfederal lands, including 434,000 acres within existing conservation areas, 1.0 million acres within BLM LUPA conservation designations, and 1.1 million acres within Conservation Planning Areas. This compares to the Preferred Alternative that includes approximately 2.7 million acres of Reserve Design Lands on nonfederal lands, including 434,000 acres within existing conservation areas, 1.2 million acres within BLM LUPA conservation designations, and 1.1 million acres within Conservation Planning Areas. The following provides a comparative analysis for specific biological resources.

Impacts to Natural Communities

A summary of the differences between effects under this Alternative and the Preferred Alternative is provided below.

California forest and woodlands

Overall, approximately 100 acres of California forest and woodlands would be impacted under Alternative 2 under the GCP, compared to 80 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are fewer impacts from solar in the West Mojave and Eastern Slopes subarea, but more impacts from solar and wind development in the Pinto Lucerne Valley and Eastern Slopes subarea.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 1,000 acres of chaparral and coastal scrubs would be impacted under both Alternative 2 and the Preferred Alternative under the GCP. Compared to the Preferred Alternative, there are greater impacts from solar and wind in the Pinto Lucerne Valley and Eastern Slopes subarea and fewer impacts from solar and transmission in the West Mojave and Eastern Slopes subarea.

Desert conifer woodlands

Overall, approximately 800 acres of desert conifer woodlands would be impacted under Alternative 2, compared to 900 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts in the Pinto Lucerne Valley and Eastern Slopes subarea and fewer impacts in the West Mojave and Eastern Slopes subarea.

Desert outcrop and badlands

Overall, approximately 1.000 acres of desert outcrop and badlands would be impacted under both Alternative 2 and the Preferred Alternative. Compared to the Preferred Alternative, there are fewer impacts in the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, and West Mojave and Eastern Slopes subareas under Alternative 2. There are greater impacts in Owens River Valley, Pinto Lucerne Valley and Eastern Slopes, and Providence and Bullion Mountains subareas under Alternative 2 with the greatest difference in the Pinto Lucerne Valley and Eastern Slopes subarea.

Desert scrubs

Overall, approximately 39,000 acres of desert scrubs would be impacted under Alternative 2 under the GCP, compared to 45,000 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts from wind development in all impacted subareas, but fewer impacts from solar development overall. The Imperial Borrego Valley is the only subarea with geothermal effects under Alternative 2 under the GCP, which are approximately the same as those of the Preferred Alternative.

Dunes

Like the Preferred Alternative, impacts to dune communities would be minimized under Alternative 2 under the GCP since application of the CMAs would require that dune communities be avoided to the maximum extent feasible in DFAs. In addition, CMA application would prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

Grasslands

Overall, approximately 5,000 acres of grasslands would be impacted under Alternative 2, compared to 6,000 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are actually greater impacts in two of the four subareas impacted but fewer impacts in the West Mojave and Eastern Slopes and Mojave and Silurian Valley subareas resulting in a fewer impacts to grasslands overall.

Riparian

Like the Preferred Alternative, impacts to riparian communities would be avoided under Alternative 2 under the GCP since application of the CMAs would require that riparian communities be avoided to the maximum extent feasible in DFAs. In addition, setbacks from riparian communities would be required that range from 200 feet for Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-

Coloradan semi-desert wash woodland/scrub to 0.25 mile for Southwestern North American riparian evergreen and deciduous woodland and Southwestern North American riparian/wash scrub.

Wetlands

Overall, approximately 4,000 acres of wetlands would be impacted under Alternative 2 under the GCP, compared to 5,000 acres under the Preferred Alternative. Like the Preferred Alternative, impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep would not occur under Alternative 2 since application of the CMAs would require that these communities be avoided to the maximum extent feasible in DFAs, including a 0.25-mile setback.

Compared to the Preferred Alternative, there are greater impacts in the West Mojave and Eastern Slopes and Panamint Death Valley subareas, but fewer impacts in all other impacted subareas.

Conservation of Natural Communities for the GCP

A summary of the differences between conservation under this Alternative and the Preferred Alternative is provided below.

California forest and woodlands

Overall, approximately 27,000 acres (26%) of California forest and woodlands would be conserved under Alternative 2, compared to 24,000 acres (23%) under the Preferred Alternative for the GCP. Compared to the Preferred Alternative, there is more California forest and woodland areas conserved in the Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas, mostly from Conservation Planning Areas.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 10,000 acres (13%) of chaparral and coastal scrubs would be conserved under Alternative 2, compared to 11,000 acres (13%) under the Preferred Alternative for the GCP. Compared to the Preferred Alternative, there is less conserved acreage from BLM LUPA conservation designations and more conserved from Conservation Planning Areas in the Pinto Lucerne Valley and Eastern Slopes subarea.

Desert conifer woodlands

Overall, approximately 21,000 acres (20%) of desert conifer woodlands would be conserved under Alternative 2, compared to 19,000 acres (18%) under the Preferred Alternative for the GCP. Compared to the Preferred Alternative, there is more

conservation in the Pinto Lucerne Valley and Eastern Slopes and Kingston and Funeral Mountains subareas.

Desert outcrop and badlands

Overall, approximately 111,000 acres (50%) of desert outcrop and badlands would be impacted under Alternative 2, compared to 110,000 acres (50%) under the Preferred Alternative for the GCP. Compared to the Preferred Alternative, there is more conservation in the Kingston and Funeral Mountains, Pinto Lucerne Valley and Eastern Slopes, and Mojave and Silurian Valley subareas. There is the about same or less conserved acreage in the remaining subareas.

Desert scrubs

Overall, approximately 843,000 acres (29%) of desert scrubs would be conserved under Alternative 2, compared to 833,000 acres (28%) under the Preferred Alternative for the GCP. All of the subareas in the Plan Area have about the same or less conservation of desert scrubs under Alternative 2 compared to the Preferred Alternative except the Kingston and Funeral Mountains, Mojave and Silurian Valley, and Panamint Death Valley subareas.

Dunes

Overall, approximately 10,000 acres (29%) of dunes would be conserved under Alternative 2, compared to 7,000 acres (21%) under the Preferred Alternative for the GCP. There is much more conservation in the Kingston and Funeral Mountains subarea under Alternative 2 compared to the Preferred Alternative and somewhat less conservation in the Owens River Valley subarea.

In addition to conservation, impacts to dune communities would be minimized under both alternatives since application of the CMAs would require that dune communities be avoided to the maximum extent feasible in DFAs. In addition, CMA application would prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

Grasslands

Overall, approximately 24,000 acres (12%) of grasslands would be conserved under both Alternative 2 and the Preferred Alternative for the GCP. Compared to the Preferred Alternative, there is more conservation of grasslands in the Pinto Lucerne Valley and Eastern Slopes in Conservation Planning Areas and less in BLM LUPA conservation designations in this subarea. There is roughly equal conservation of grasslands in the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, West Mojave and Eastern Slopes, and Mojave and Silurian Valley subareas.

Riparian

Overall, approximately 75,000 acres (37%) of dunes would be conserved under Alternative 2, compared to 74,000 acres (37%) under the Preferred Alternative for the GCP. Overall, there is more conservation in Conservation Planning Areas under Alternative 2. There is more conservation in the Imperial Borrego Valley subarea, but less conservation in the Imperial Borrego Valley and Owens River Valley subareas.

In addition to conservation, impacts to riparian communities would be avoided under both alternatives since application of the CMAs would require that riparian communities be avoided to the maximum extent feasible in DFAs. In addition, setbacks from riparian communities would be required that range from 200 feet for Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub to 0.25 mile for Southwestern North American riparian evergreen and deciduous woodland and Southwestern North American riparian/wash scrub.

Wetlands

Overall, approximately 80,000 acres (25%) of wetlands would be impacted under Alternative 2, compared to 72,000 acres (22%) under the Preferred Alternative for the GCP. There is more conserved acreage of wetlands primarily in the Providence and Bullion Mountains and West Mojave and Eastern Slopes subareas, under Alternative 2. All of the other subareas, except the Kingston and Funeral Mountains, have the same or fewer conserved acres of wetland communities. There is substantially more acreage conserved under the Conservation Planning Areas but less acreage conserved under BLM LUPA conservation designations in Alternative 2, as compared with the Preferred Alternative.

In addition to conservation, impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep would not occur under both alternatives since application of the CMAs would require that these communities be avoided to the maximum extent feasible in DFAs, including a 0.25-mile setback.

Impacts to Covered Species Habitat

Overall, there are less impacts to suitable habitat for Covered Species under Alternative 2 compared to the Preferred Alternative for the GCP. The subareas where less suitable habitat for Covered Species would impacted under Alternative 2 would be the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, Kingston and Funeral Mountains, Mojave and Silurian Valley, and West Mojave and Eastern Slopes subareas. Less suitable habitat for Covered Species would be impacted under Alternative 2 compared to the Preferred Alternative except for the following species: Bendire's thrasher, golden eagle (nesting habitat), least Bell's vireo, Owens pupfish, Owens chub, bighorn sheep (inter-

mountain and mountain habitat), little San Bernardino mountains linanthus, Owens checkerbloom, and Parish's daisy. CMA application would further avoid and minimize impacts to suitable habitat for Covered Species under both alternatives as described in Section IV.7.3.3.1.1; however, under Alternative 2, the DFAs are sited in remote and sensitive locations such that development of Covered Activities in these locations would result in adverse impacts that cannot be mitigated or otherwise avoided or minimized.

Impacts to Non-Covered Species Habitat

Overall, Alternative 2 only has the potential for greater impacts to suitable habitat for only a few Non-Covered Species compared to the GCP Preferred Alternative.

Potential impacts to dune-restricted species would be the same for both Alternatives. In addition, application of CMAs and general siting design would further protect spring-, cave-, and dune-restricted species by avoiding renewable development in these habitats under both alternatives. More suitable habitat for Non-Covered Species could be impacted under Preferred Alternative compared to Alternative 2 for all of the amphibian/reptile species. All of the bird Non-Covered Species have greater potential impacts to suitable habitat under the Preferred Alternative as compared to Alternative 2. All of the mammal Non-Covered Species have greater potential impacts to suitable habitat under the Preferred Alternative as compared to Alternative 2. Only a few of the plant Non-Covered Species could have greater potential impacts under Alternative 2 compared to the Preferred Alternative.

Conservation of Covered Species Habitat

Overall, there is greater conservation of Covered Species habitat under Alternative 2 compared to the Preferred Alternative for the GCP. There is more conservation in Conservation Planning Areas but less conservation in BLM LUPA conservation designations under Alternative 2. Three subareas under Alternative 2 have less conservation of Covered Species suitable habitat compared to the Preferred Alternative, including the Imperial Borrego Valley, Owens River Valley, and Providence and Bullion Mountains subareas. The largest difference between the amount of habitat conserved for Covered Species is in the Kingston and Funeral Mountains subarea.

More suitable habitat for the following species would be conserved under the Preferred Alternative compared to Alternative 2: flat-tailed horned lizard, burrowing owl, California condor, Gila woodpecker, mountain plover, Swainson's hawk, Owens pupfish, Owens tui chub, Mohave ground squirrel, Mojave monkeyflower, Owens Valley checkerbloom, and Parish's daisy. For the remaining species, more or the same suitable habitat would be conserved under the Preferred Alternative.

In addition to conservation of suitable habitat for Covered Species, compensation CMAs would offset habitat loss for all Covered Species under both alternatives. CMAs also require avoidance and minimization of Covered Species in DFAs and CMAs would be applied in the Reserve to benefit Covered Species.

Impacts to the Desert Linkage Network

Overall, approximately the same acreage of the desert linkage network would be impacted under Alternative 2 compared to the Preferred Alternative for the GCP. There is actually more impacted desert linkage network under the Preferred Alternative in the Cadiz Valley and Chocolate Mountain subarea, but less mostly in the Pinto Lucerne Valley and Eastern Slopes and Providence and Bullion Mountains subareas. Under Alternative 2, the DFAs are sited in remote and sensitive locations such that development of Covered Activities in these locations, absent CMAs to protect these linkages or removing DFAs from these locations, would result in adverse impacts to habitat linkages and wildlife movement that cannot be mitigated or otherwise avoided or minimized.

Conservation of the Desert Linkage Network

Overall, there is greater conservation of the desert linkage network under Alternative 2 compared to the Preferred Alternative for the GCP. The biggest difference in acreage would be in the Pinto Lucerne Valley and Eastern Slopes and the West Mojave and Eastern Slopes subareas. In addition to conservation of the desert linkage network, CMAs provide for the avoidance and minimization of certain linkages in the DFAs.

Operational Impacts

The operation of renewable energy would result in the degradation of vegetation through the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants as well as the disturbance of wildlife due to noise, predator avoidance behavior, and light and glare. Alternative 2 would result in fewer terrestrial operational impacts in the GCP when compared with the Preferred Alternative. Additionally, the distribution of vegetation degradation and wildlife disturbance as a result of operational impacts would be distributed differently under the Preferred Alternative and Alternative 2. The degradation of vegetation and disturbance of wildlife during operations in Alternative 2 would be more heavily distributed in the Pinto Lucerne Valley and Eastern Slopes subarea, while the Preferred Alternative would have a greater distribution of terrestrial operational impacts in the Imperial Borrego Valley, West Mojave and Eastern Slopes, and Cadiz Valley and Chocolate Mountains subareas. Both the Preferred Alternative and Alternative 2 would direct renewable energy development to DFAs that are designed to minimize impacts to biological resources and both would

implement CMAs to avoid, minimize, and compensate for operational impacts from vegetation degradation and wildlife disturbance.

Operational impacts of Alternative 2 on bird and bat Covered Species would result in an estimated 1,300 more bird collisions and 7,000 more bat collision with wind turbines than the Preferred Alternative GCP. Differences would be especially marked in Pinto and Lucerne Valley subarea with an expected 700 more collisions per year. This would be especially important for golden eagle and Bendire's thrasher.

Impacts to Avian and bat species from solar development would be reduced with a plan-wide reduction in solar development of 17,986 acres in nonfederal DFAs. This would be especially marked in Imperial Borrego Valley and West Mojave and Eastern Slopes subareas.

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IV.7.3.5 Alternative 3

The impact analysis for biological resources under Alternative 3 is provided below.

IV.7.3.5.1 Plan-Wide Impacts of Implementing the DRECP: Alternative 3

This section provides the Plan-wide assessment of impacts of implementing the DRECP for Alternative 3. This Plan-wide assessment addresses the impacts and mitigation measures from renewable energy and transmission development and impacts of the reserve design.

IV.7.3.5.1.1 Plan-Wide Impacts and Mitigation Measures from Renewable Energy and Transmission Development

Impact Assessment

The following provides the Plan-wide assessment of impacts and mitigation measures for renewable energy and transmission development for Alternative 3. Impacts are organized by biological resources impact statement (i.e., BR-1 through BR-9). Alternative 3 includes DFAs (1,405,000 acres) and transmission corridors where approximately 182,000 acres of ground disturbance related impacts and operational impacts would occur. As described in Section IV.7.1.1, the reported impact acreage (e.g., acres of impact to natural communities or Covered Species habitat) is based on the overlap of the DFAs and the resource (e.g., mapped natural community or modeled Covered Species habitat) times the proportion of the impacts from Covered Activity development anticipated with the DFA. Alternative 3 includes Future Assessment Areas (FAAs), and these areas are not considered impacted or conserved in this analysis. In Alternative 3, the SAAs from the Preferred Alternative are part of the Reserve Design Lands, and this analysis of Alternative 3 includes conservation within those lands.

Impact BR-1: Siting, construction, decommissioning, and operational activities would result in loss of native vegetation.

The following provides an analysis of the impacts of the development of Covered Activities on natural communities in the Plan Area. Table IV.7-206 shows the impacts to natural communities within DFAs. An effects summary by general community is provided below. Appendix R2 provides a detailed analysis of natural community effects by ecoregion subarea.

<u>California forest and woodlands</u>

California forest and woodlands are limited to the higher elevations in the Plan Area, where they occur primarily in the Tehachapi Mountains in Kern County and the mountains in southwest San Bernardino County.

Overall, approximately 40 acres (0.03%) of California forest and woodlands would be impacted under Alternative 3. Because California forest and woodlands are located primarily in peripheral portions of the Plan Area with little overlap with DFAs, impacts to these communities are limited in extent and are primarily associated with effects from transmission. Furthermore, CMAs would be implemented to address roosting covered bat species (AM-DFA-BAT-1, AM-RES-RL-BAT-1, and AM-RES-RL-BAT-2), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects.

California forest and woodlands provide habitat for the following Covered Species: Tehachapi slender salamander, golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, bighorn sheep, and Bakersfield cactus. Therefore, impacts to this community may have an adverse effect on these species by removing or degrading suitable habitat; however, application of species-specific CMAs would help avoid and minimize that effect and compensation CMAs would offset the effect (COMP-1 and COMP-2).

Chaparral and coastal scrubs (Cismontane scrub)

Chaparral in the Plan Area occurs in the Tehachapi Mountains and at the base of the San Gabriel Mountains near Antelope Valley in the southern portion of the Plan Area. Coastal scrubs in the Plan Area generally occur east of the Tehachapi Mountains near Mojave, in the southern portion of the Plan Area from Mountain Top Junction east of Highway 138 east to Mojave River Forks Regional Park, in the Fort Irwin area, and in scattered locations west to the Plan Area boundary.

Overall, approximately 900 acres (0.9%) of the chaparral and coastal scrubs would be impacted under Alternative 3. Impacts would be primarily from solar development and most impacts would be to Central and South Coastal Californian coastal sage scrub. Impacts to chaparral and coastal scrubs would only occur in the Western Mojave and Eastern Slopes and Pinto Lucerne Valley and Eastern Slopes subareas. CMAs would be implemented to address Covered Species (AM-DFA-BAT-1, AM-RES-RL-BAT-1, AM-RES-RL-BAT-2, AM-DFA-PLANT-1 through AM-DFA-PLANT-3, AM-RES-BLM-PLANT-1, and AM-RES-RL-PLANT-1 through AM-RES-RL-PLANT-3), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects and compensation CMAs would offset the effect (COMP-1 and COMP-2).

Chaparral and coastal scrubs provide habitat for the following Covered Species: golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, Parish's daisy, and Bakersfield cactus. Therefore, impacts to this general community may have a negative effect on these species by removing or degrading suitable habitat;

however, application of species-specific CMAs would help avoid and minimize that effect and compensation CMAs would offset the effect.

Desert conifer woodlands

The desert conifer woodlands in the Plan Area primarily occur in the Tehachapi Mountains, along the southwestern boundary of the Plan Area to the San Gabriel Mountains, in the Providence and Bullion Mountains, Kingston and Funeral Mountains, and the Clark Mountain Range. All of the desert conifer woodlands in the Plan Area are classified as Great Basin pinyon-juniper woodland.

Overall, approximately 800 acres (0.3%) of the desert conifer woodlands would be impacted under Alternative 3. Impacts would be primarily from solar development. Most impacts to desert conifer woodlands would occur in the Western Mojave and Eastern Slopes subarea, but some would also occur in the Pinto Lucerne Valley and Eastern Slopes subarea. CMAs would be implemented to address roosting covered bat species (AM-DFA-BAT-1, AM-RES-RL-BAT-1, and AM-RES-RL-BAT-2), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects and compensation CMAs would offset the effect.

Desert conifer woodlands provide habitat for the following Covered Species: Tehachapi slender salamander, golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, bighorn sheep, and Parish's daisy. Therefore, impacts to this general community may have a negative effect on these species by removing or degrading suitable habitat; however, application of species-specific CMAs would help avoid and minimize that effect and compensation CMAs would offset the effect.

Desert outcrop and badlands

Desert outcrop and badlands occur throughout much of the Plan Area, but is most prevalent in the eastern and southern portions south of the Piute Valley. All of the desert outcrop and badlands is classified as North American warm desert bedrock cliff and outcrop.

Overall, approximately 6,000 acres (0.4%) of the desert outcrop and badlands would be impacted under Alternative 3. Impacts would be primarily from solar and transmission development. Impacts to desert outcrop and badlands are primarily occur in the Cadiz Valley and Chocolate Mountains subarea and Imperial Borrego Valley subareas. CMAs would be implemented to address roosting covered bat species (AM-DFA-BAT-1, AM-RES-RL-BAT-1, and AM-RES-RL-BAT-2), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects and compensation CMAs would offset the effect.

Desert outcrop and badlands provide habitat for the following Covered Species: golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, and bighorn sheep. These communities also provide habitat for desert kit fox (Planning Species). Covered Species associated with desert scrub may also be associated with this general community. Therefore, impacts to desert outcrop and badlands may have a negative effect on these species by removing or degrading suitable habitat; however, application of species-specific CMAs would help avoid and minimize that effect and compensation CMAs would offset the effect.

Desert scrubs

Desert scrubs, which comprise more than 70% of the Plan Area, are distributed throughout the Plan Area. There are nine desert scrub natural communities identified in the Plan Area, but the majority of the general community on available lands is comprised of lower bajada and fan Mojavean–Sonoran desert scrub (82% or 10,830,193 acres).

Overall, approximately 93,000 acres (0.7%) of desert scrubs would be impacted under Alternative 3. Impacts would be primarily from solar development, but transmission accounts for approximately 16,000 acres of impacts to desert scrub and wind and geothermal account for approximately 3% and 8% of impacts to desert scrub, respectively. Most impacts would be to the most prevalent desert scrub community: Lower Bajada and Fan Mojavean - Sonoran desert scrub.

The majority of impacts to desert scrub would occur in the Western Mojave and Eastern Slopes and Imperial Borrego Valley subareas, but impacts to desert scrubs are widely distributed; the only subareas without impacts to this general community are the Kingston and Funeral Mountains and Piute Valley and Sacramento Mountains subareas. CMAs would be implemented to address breeding, nesting, or roosting species, soil resources that would also help reduce adverse effects to desert scrubs. These include avoidance, setbacks, and/or suitable habitat impact caps for flat-tailed horned lizard (AM-RES-RL-ICS-8 and AM-RES-RL-ICS-9 and AM-DFA-ICS-16), desert tortoise (AM-DFA-ICS-3 through AM-DFA-ICS-15 and AM-RES-RL-ICS-1 through AM-RES-RL-ICS-7), Mohave ground squirrel (AM-DFA-ICS-36 through AM-DFA-ICS-43 and AM-RES-BLM-ICS-14 through AM-RES-BLM-ICS-17), bat Covered Species (AM-DFA-BAT-1, AM-RES-RL-BAT-1,and AM-RES-RL-BAT-2), and plant Covered Species (AM-DFA-PLANT-1 through AM-DFA-PLANT-3, AM-RES-BLM-PLANT-1, and AM-RES-RL-PLANT-1 through AM-RES-RL-PLANT-3). Furthermore, CMAs would be implemented to address soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects and compensation CMAs (COMP-1 and COMP-2) would offset the effect.

Desert scrubs provide habitat for the following Covered Species: golden eagle, California condor, Bendire's thrasher, burrowing owl, Swainson's hawk, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, Mohave ground squirrel, bighorn sheep, desert tortoise, flat-tailed horned lizard, Mojave fringe-toed lizard, triple-ribbed milk-vetch, alkali mariposa-lily, desert cymopterus, Mojave tarplant, Little San Bernardino Mountains linanthus, Mojave monkeyflower, Bakersfield cactus, and Parish's phacelia. These communities also provide habitat for burro deer and desert kit fox (Planning Species). Therefore, impacts to this general community may have a negative effect on these species by removing or degrading suitable habitat; however, application of species-specific CMAs would help avoid and minimize that effect and compensation CMAs would offset the effect.

Dunes

Dune communities are restricted but scattered across in the Plan Area, and include approximately 12 systems in the Mojave Desert and lower Great Basin Desert and 4 systems in the Sonoran Desert, as well as numerous smaller dunes. The largest dune area is located in the East Mesa-Sand Hill portion of the Sonoran Desert. Dune natural communities in the Plan Area are classified as North American warm desert dunes and sand flats.

All impacts to dune communities, except those impacts determined to be unavoidable, would be avoided under Alternative 3 through application of the dune avoidance and minimization CMAs (AM-DFA-DUNE-1 through AM-DFA-DUNE-3, AM-RES-BLM-DUNE-1, AM-RES-BLM-DUNE-2, and AM-RES-RL-DUNE-1 through AM-RES-RL-DUNE-3) as well as landscape-level CMAs for Aeolian processes (AM-LL-3). Compensation CMAs would offset any impacts determined to be unavoidable (COMP-1 and COMP-2).

Dune communities provide habitat for the following Covered Species: Mojave fringe-toed lizard and flat-tailed horned lizard. Therefore, avoidance of impacts to this general community would benefit these species and compensation CMAs would offset any impacts determined to be unavoidable.

Grasslands

Grassland communities cover just over 1% of the Plan Area but are scattered throughout the Area. They are most common in the western portion of the Plan Area, especially along the boundary from east of Bakersfield to the southern end of the San Bernardino National Forest.

Overall, approximately 7,000 acres (2.9%) of grassland communities would be impacted under Alternative 3. The majority of impacts to grassland communities would be from solar development in the West Mojave and Eastern Slopes subarea. Impacts would also occur in the Cadiz Valley and Chocolate Mountains, Mojave and Silurian Valley, and Pinto

Lucerne Valley and Eastern Slopes subareas. CMAs would be implemented to address breeding, nesting, or roosting species (AM-DFA-AG-2), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects and compensation CMAs would offset the effect (COMP-1 and COMP-2).

Grassland communities provide habitat for the following Covered Species: golden eagle, burrowing owl, mountain plover, Swainson's hawk, and Bendire's thrasher. These communities also provide habitat for desert kit fox (Planning Species). Therefore, impacts to this community may have a negative effect on these species by removing or degrading suitable habitat; however, application of species-specific CMAs would help avoid and minimize that effect and compensation CMAs would offset the effect.

Riparian

Riparian communities cover nearly 6% of the Plan Area but are scattered throughout the Area, but are most common in the southern portion of the Plan Area in the Colorado River area, in the Cadiz and Chocolate Mountains and Imperial Borrego Valley subareas, and along major drainages such as the Mojave, Colorado, and Amargosa Rivers.

Riparian communities include microphyll woodlands, which are important vegetation assemblages often associated with desert washes that are comprised of the Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub natural communities. A subset of these communities would be considered groundwater-dependent vegetation (e.g., mesquite bosques). Under Alternative 3, microphyll woodlands occur within DFAs primarily in the McCoy Valley area in the Cadiz Valley and Chocolate Mountains ecoregion subarea.

Impacts to riparian communities would be avoided under Alternative 3 through application of the riparian CMAs (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). In addition, setbacks from riparian communities would be required that range from 200 feet for Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub to 0.25 mile for Southwestern North American riparian evergreen and deciduous woodland and Southwestern North American riparian/wash scrub. Compensation CMAs would offset any impacts determined to be unavoidable (COMP-1 and COMP-2).

Riparian communities provide habitat for the following Covered Species: California black rail, Gila woodpecker, Yuma clapper rail, least Bell's vireo, southwestern willow flycatcher, western yellow-billed cuckoo, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, and Tehachapi slender salamander. These communities also provide habitat for burro deer (Planning Species). In addition, species associated with desert scrub are also

associated with Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub. Avoidance of impacts to riparian communities would benefit these species. Furthermore, there are also CMAs to avoid impacts to riparian species including pre-construction nesting bird surveys for riparian and wetland bird Covered Species. Application of species-specific CMAs would also benefit species associated with riparian communities. Compensation CMAs would offset any impacts determined to be unavoidable.

Wetlands

Wetland communities cover nearly 5% of the Plan Area but are scattered throughout the Area, including the Owens River Valley, and around various dry lakes and playas. The largest single contributor to wetlands in the Plan Area is the open water of the Salton Sea (22% of the wetlands). However, several isolated wetlands occur throughout the Plan Area (e.g. Amargosa WSR) and these are important for their tendency to be populated with locally endemic species of plants and animals.

Overall, approximately 12,000 acres (1.4%) of wetland communities, specifically North American warm desert alkaline scrub, herb playa and wet flat, and open water, would be impacted under Alternative 3. All impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep, except those impacts determined to be unavoidable, would be avoided under Alternative 3 through application of the wetland CMAs, including a 0.25-mile setback. More than half of the impacts to wetland communities would be in DFAs in open water of the Salton Sea in the Imperial Borrego Valley subarea. Of the remaining impacts to wetland communities, the majority would occur from solar development in the West Mojave and Eastern Slopes subarea.

CMAs for North American warm desert alkaline scrub and herb playa and wet flat, southwestern North American salt basin and high marsh, and other undifferentiated wetland-related land covers (i.e., "Playa", "Wetland", and "Open Water") would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided riparian or wetland natural communities (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). Compensation CMAs would offset any impacts to these features (COMP-1 and COMP-2).

Wetland communities provide habitat for the following Covered Species: California black rail, Yuma clapper rail, tricolored blackbird, California leaf-nosed bat, pallid bat, Townsend's big-eared bat, desert pupfish, Mohave tui chub, Owens pupfish, and Owens tui chub. In addition, species associated with desert scrub are also associated with Southwestern North American Salt Basin and High Marsh. Avoidance of impacts to wetland communities would benefit these species. Furthermore, there are also CMAs to avoid impacts to wetland species including pre-construction nesting bird surveys for riparian

and wetland bird Covered Species. In addition, application of species-specific CMAs would help avoid and minimize impacts to species associated with wetland communities. Compensation CMAs would offset any impacts determined to be unavoidable.

Table IV.7-206
Plan-Wide Impact Analysis for Natural Communities – Alternative 3

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
California forest and woodland						
Californian broadleaf forest and woodland	72,000	0	0	0	0	0
Californian montane conifer forest	78,000	0	0	0	40	40
Chaparral and coastal scrub community (Cismontane scrub)						
Californian mesic chaparral	4,000	0	0	0	10	10
Californian pre-montane chaparral	1,000	0	0	0	0	0
Californian xeric chaparral	24,000	0	0	0	40	40
Central and south coastal California seral scrub	1,000	0	0	0	0	0
Central and South Coastal Californian coastal sage scrub	54,000	600	50	0	200	800
Western Mojave and Western Sonoran Desert borderland chaparral	24,000	0	0	0	40	40
Desert conifer woodlands						
Great Basin Pinyon - Juniper Woodland	287,000	500	50	0	200	800
Desert outcrop and badlands						
North American warm desert bedrock cliff and outcrop	1,613,000	3,000	70	700	2,000	6,000
Desert Scrub						
Arizonan upland Sonoran desert scrub	57,000	0	0	0	0	0
Intermontane deep or well-drained soil scrub	106,000	500	40	0	300	800
Intermontane seral shrubland	74,000	2,000	100	0	100	2,000

Table IV.7-206
Plan-Wide Impact Analysis for Natural Communities – Alternative 3

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Inter-Mountain Dry Shrubland and Grassland	437,000	800	0	600	500	2,000
Intermountain Mountain Big Sagebrush Shrubland and steppe	76,000	0	0	0	0	0
Lower Bajada and Fan Mojavean - Sonoran desert scrub	10,859,000	56,000	3,000	6,000	14,000	79,000
Mojave and Great Basin upper bajada and toeslope	1,333,000	3,000	300	0	600	4,000
Shadscale - saltbush cool semi-desert scrub	279,000	4,000	80	500	700	5,000
Southern Great Basin semi-desert grassland	100	0	0	0	0	0
Dunes[3]						
North American warm desert dunes and sand flats	282,000	0	0	0	0	0
Grassland						
California Annual and Perennial Grassland	230,000	6,000	300	0	500	7,000
California annual forb/grass vegetation	8,000	70	0	0	0	70
Riparian[3]						
Madrean Warm Semi-Desert Wash Woodland/Scrub	697,000	0	0	0	0	0
Mojavean semi-desert wash scrub	30,000	0	0	0	0	0
Riparian	600	0	0	0	0	0
Sonoran-Coloradan semi-desert wash woodland/scrub	191,000	0	0	0	0	0
Southwestern North American riparian evergreen and deciduous woodland	6,000	0	0	0	0	0

Table IV.7-206
Plan-Wide Impact Analysis for Natural Communities – Alternative 3

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Southwestern North American riparian/wash scrub	66,000	0	0	0	0	0
Wetland[3]						
Arid West freshwater emergent marsh	4,000	0	0	0	0	0
Californian warm temperate marsh/seep	400	0	0	0	0	0
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	310,000	3,000	100	0	300	4,000
Open Water	209,000	4,000	10	2,000	1,000	7,000
Playa	78,000	0	0	0	10	10
Southwestern North American salt basin and high marsh	261,000	2,000	60	0	100	2,000
Wetland	8,000	100	10	0	20	200
Other Land Cover – Developed and Disturbed Areas						
Agriculture	711,000	39,000	500	8,000	8,000	55,000
Developed and Disturbed Areas	447,000	1,000	0	60	2,000	3,000
Not Mapped	7,000	900	100	0	10	1,000
Rural	114,000	1,000	10	400	700	2,000
Total	**19,040,000**	**129,000**	**5,000**	**17,000**	**32,000**	**182,000**

1 Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

2 Solar impacts include ground-mounted distributed generation.

3 Impacts to the dune community, riparian communities, arid west freshwater emergent marsh, and Californian warm temperate marsh/seep would be avoided through implementation of CMAs. Only impacts determined to be unavoidable would occur in these natural communities.

Notes: The natural community classification system is described in Chapter III.7 and follows CDFG 2012. Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Rare natural communities include natural community alliances with state rarity rankings S1, S2, or S3 (critically imperiled, imperiled, or vulnerable). Of the 51 rare natural

community alliances mapped in the Plan Area, 5 rare alliances would be impacted under Alternative 3 (with at least 5 acres of impact), the vast majority of the impact acreage (approximately 4,000 acres) would be comprised of impacts to Joshua tree woodland (*Yucca brevifolia*) occurring in the West Mojave and Eastern Slopes, Pinto Lucerne Valley and Eastern Slopes, and Mojave and Silurian Valley subareas. CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection that would help avoid and minimize these effects on rare natural communities. Additionally, AM-DFA-ONC-1 and -2 would require inventorying and preserving or transplanting cactus, yuccas, and succulents. While the compensation CMAs would offset the lost habitat acreage of these impacts, the compensation CMAs do not specifically require the replacement of, or mitigation for, specific rare natural community alliances. After application of the CMAs, impacts to rare natural communities from Alternative 3 would be adverse and would require mitigation.

Impact BR-2: Siting, construction, decommissioning, and operational activities would result in adverse effects to jurisdictional waters and wetlands.

Siting, construction, decommissioning, and operations of Covered Activities have the potential to result in adverse effects to federal or state jurisdictional waters and wetlands. In the Plan Area, jurisdictional waters and wetlands would likely include the riparian and wetland communities analyzed under Impact BR-1 and may also include other features including playas, seeps/springs, major rivers, and ephemeral drainage networks.

All Covered Activities would be required to comply with existing, applicable federal and state laws and regulations related to jurisdictional waters and wetlands. Additionally, all impacts to riparian communities would be avoided under Alternative 3 through application of the riparian CMAs including riparian setbacks. Impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep wetlands would be avoided under Alternative 3 through application of the wetland CMAs, including wetland setbacks (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). Approximately 11,000 acres of other wetland communities would be impacted under Alternative 3. See the analysis for the loss of native vegetation provided under BR-1 for a discussion of these potential impacts. All or a portion of the estimated wetland impacts could result in adverse effects to jurisdictional waters and wetlands without compensation. Compensation CMAs would offset any impacts determined to be unavoidable.

Additionally, playas, seeps/springs, major rivers, and ephemeral drainage networks are waters and wetland features that provide hydrological functions and may be determined to be jurisdictional waters and wetlands. Adverse effects to these features would have the potential to impact jurisdictional waters and wetland.

Playa

Approximately 1% (4,000)acres) of playa would be impacted by Covered Activities under Alternative 3. The majority of impacts would be associated with solar (4,000acres), with 100 acres of wind impacts and 300 acres of transmission impacts. Ecoregion subareas of potential impacts to playas include the Cadiz Valley and Chocolate Mountains, Mojave and Silurian Valley, Owens River Valley, Panamint Death Valley, Pinto Lucerne Valley and Eastern Slopes, Providence and Bullion Mountains, and West Mojave and Eastern Slopes.

Application of species-specific CMAs would help avoid and minimize impacts to species associated with playas (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). CMAs would also require compliance with all applicable laws and regulations pertaining to wetlands and waters, including playas (AM-PW-9 and AM-LL-2). Compensation CMAs would offset impacts to these features (COMP-1 and COMP-2).

Seep/Spring

Seeps occur within DFAs and transmission corridors and potential impacts to seep/spring locations have the potential to occur under Alternative 3 in the following ecoregion subareas: Imperial Borrego Valley, Mojave and Silurian Valley, Owens River Valley, Pinto Lucerne Valley and Eastern Slopes, and West Mojave and Eastern Slopes. Impacts to seeps and springs would be adverse absent implementation of avoidance measures. Impacts to seep/spring locations and associated Covered Species and hydrological functions would be avoided through adherence to avoidance and minimization CMAs, including habitat assessments and avoidance of seeps with 0.25 mile setbacks (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). Compensation CMAs would offset any impacts determined to be unavoidable (COMP-1 and COMP-2).

Major Rivers

Under Alternative 3, there would no direct impacts to any of the four major rivers within the Plan Area – Amargosa, Colorado, Mojave, and Owens Rivers. However, changes in hydrological conditions associated with development could adversely impact these rivers. Riparian CMAs would require avoidance of these features with setbacks (AM-DFA-RIPWET-1).

Ephemeral Drainages

Ephemeral drainages occur throughout the Plan Area, and some of these features could be determined to state or federal jurisdictional waters. Impacts to ephemeral drainages would likely occur from Covered Activities. Application of riparian avoidance CMAs (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9) would avoid and minimize impacts to a portion

of the ephemeral drainages within DFAs. Additionally, all Covered Activities would be required to comply with existing, applicable federal and state laws and regulations related to jurisdictional waters and wetlands.

Impact BR-3: Siting, construction, decommissioning, and operational activities would result in degradation of vegetation.

Siting, construction, decommissioning, and operational Covered Activities would result in the degradation of vegetation through the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants. The degree to which these factors contribute to the degradation of vegetation corresponds to the distribution of Covered Activities in the Plan Area that would result in dust, fire, and introduction of invasive plants or that would use dust suppressants and implement fire management. As described in Section IV.7.2.1, the extent of some of these adverse effects may occur at or beyond the source of these effects, the project footprint, or the project area depending on the type of effect and other environmental considerations. As such, the potential adverse effects caused by these factors were evaluated using the overlap of the natural community mapping and the estimated distribution of Covered Activities across subareas.

Under the Alternative 3, approximately 7% of the total Plan Area would be DFAs that allow renewable energy development. Based on the planned renewable energy capacity renewable energy generation and transmission under Alternative 3, the vegetation degradation from dust, dust suppressants, fire, fire management, and invasive plants would collectively result in correspond to the terrestrial operational impacts shown in Table IV.7-207. These impacts would mostly occur in the Imperial Borrego Valley, West Mojave and Eastern Slopes, Cadiz Valley and Chocolate Mountains, and the Pinto Lucerne Valley and Eastern Slopes subareas. As a result, these subareas would have the greatest potential to result in the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants.

Table IV.7-207
Plan-Wide Terrestrial Operational Impacts – Alternative 3

Ecoregion Subarea	Solar Impact[1] (acres)	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Cadiz Valley and Chocolate Mountains	21,000	3,000	-	8,000	32,000
Imperial Borrego Valley	45,000	700	16,000	14,000	75,700
Kingston and Funeral Mountains	-	-	-	-	-
Mojave and Silurian Valley	4,000	-	-	1,000	5,000

Table IV.7-207
Plan-Wide Terrestrial Operational Impacts – Alternative 3

Ecoregion Subarea	Solar Impact[1] (acres)	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Owens River Valley	2,000	-	1,000	800	3,800
Panamint Death Valley	2,000	-	-	500	2,500
Pinto Lucerne Valley and Eastern Slopes	12,000	6,000	-	5,000	23,000
Piute Valley and Sacramento Mountains	-	-	-	-	-
Providence and Bullion Mountains	2,000	-	-	700	2,700
West Mojave and Eastern Slopes	41,000	10,000	-	2,000	53,000
Total	**129,000**	**20,000**	**17,000**	**32,000**	**198,000**

[1] Solar impacts include ground-mounted distributed generation.

Notes: Terrestrial operational impacts collectively refers to vegetation degradation impacts (BR-3) from dust, dust suppressants, fire, fire management, and invasive plants and wildlife impacts (BR-4) from creation of noise, predator avoidance behavior, lighting and glare. For the purposes of analysis, terrestrial operational impacts were quantified using the project area extent for solar and geothermal, using 25% of the project area for wind, and the right-of-way area for transmission.

Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation, short-term and long-term wind (excluding project area impacts), geothermal project area, and transmission impacts. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Dust and Dust Suppressants

Most natural communities and plant Covered Species would be susceptible to degradation from physical damage, reduced photosynthesis, and reduced net primary productivity as a result of dust created by renewable energy development. However, due to the changed water usage by Mojave desert shrubs that can result from dust deposition, natural communities with these shrubs are particularly susceptible. These natural communities are primarily affected by Covered Activities in the West Mojave and Eastern Slopes subarea. The Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas also contain lesser levels of impacts to these natural communities. Plant Covered Species that could also be affected by abrasion, vegetation loss, root exposure, and burial as a result of dust are prevalent near the DFAs in the Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas. Therefore, considering the distribution of DFAs and these sensitive natural communities and plant Covered Species the West Mojave and Eastern Slopes subarea would experience the greatest magnitude of dust-related impacts.

The application of dust suppressants to reduce dust emissions is a common management practice used during construction and operations and is a Covered Activity under the Plan. Dust-related degradation of vegetation would be further minimized with the incorporation of avoidance and minimization CMAs. The Plan-wide avoidance and minimization CMAs would generally identify vegetation in the project area (AM-PW-1), utilize standard practices to minimize the amount of exposed soils (AM-PW-14) and reduce dust caused by soil erosion (AM-PW-10). Additionally, Alternative 3 would implement CMAs that applicable in the DFAs would also serve to reduce vegetation degradation from dust including AM-DFA-ONC-1 and AM-DFA-ONC-2, which would require habitat assessments of natural communities and protection/salvage plans for particular plants found on project sites. CMAs AM-DFA-PLANT-1 through AM-DFA-PLANT-3 would also result in the surveying of plant Covered Species, avoidance and a 0.25-mile setback from plant Covered Species occurrences, and would place an impact caps on suitable habitat for plant Covered Species. Furthermore, various CMAs would reduce potential vegetation degradation from dust created by operation and maintenance of transmission in the reserve design envelope including measures for avoidance of plant Covered Species by substations, setbacks for plant Covered Species, and impact caps on suitable habitat for plant Covered Species (AM-RES-RL-PLANT-1 through AM-RES-RL-PLANT-3). The CMA AM-TRANS-4 would restrict transmission to within designated utility corridors, thereby minimizing the creation of dust from exposed soils as a result of transmission throughout the Plan Area.

The application of dust suppressants can result in chemical and physical changes to an ecosystem, alter hydrological function of soils and drainage areas, and increase pollutant loads in surface water. As a result, riparian and wetland natural communities are the most likely vegetation to be affected by the use of dust suppressants. These natural communities are most prevalent near DFAs in the Imperial Borrego Valley subarea and to a lesser extent in the West Mojave and Eastern Slopes subarea, where most of the impacts to riparian and wetland natural communities in the Plan Area would occur. Plant Covered Species that could also be affected by dust suppressants and are prevalent near the DFAs in the Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas. As such, the West Mojave and Eastern Slopes and to a lesser extent the Imperial Borrego Valley and Pinto Lucerne Valley and Eastern Slopes subareas would contain the largest potential amount of vegetation degradation because of dust suppressants.

Avoidance and minimization CMAs implemented as part of Alternative 3, including AM-PW-9 and AM-PW-10, would utilize standard practices to reduce erosion and runoff of dust suppressant outside of areas where they are applied. The CMA AM-DFA-RIPWET-1 would also establish setbacks and avoidance requirements for all riparian natural communities and some wetland natural communities. Therefore, these measures would minimize potential adverse effects of dust suppressants used during siting, construction, and operational Covered Activities.

Fire and Fire Management

Anthropogenic ignitions of fires that could result from operational and maintenance activities associated with renewable energy facilities could destroy the natural communities found in the Plan Area. Desert scrub natural communities are naturally slow to recover from fire episodes and are more vulnerable to proliferation of non-native grasses that can often successfully compete with and overcome native assemblages. The addition of non-native grasses can create a positive feedback loop of increasing fire frequency and intensity, resulting in significant and potentially permanent community type conversion. Within the Plan Area desert scrub natural communities are primarily affected by Covered Activities within the West Mojave and Eastern Slopes subarea. However, impacts to desert scrubs are widely distributed and the Imperial Borrego Valley and Cadiz Valley and Chocolate Mountains subareas would also experience impacts to desert scrub natural communities. With the distribution of renewable energy development and these natural communities, the greatest magnitude of vegetation degradation as a result of fire would occur in the West Mojave and Eastern Slopes subarea.

Construction and maintenance of fire breaks and other fire management techniques would typically result in the removal of vegetation from woodland, chaparral, and grassland natural communities. However, target fuels reductions in areas of high incidence of non-native, invasive, species (e.g. salt cedar hot spots) can have a beneficial effect on native habitats. Within the Plan Area the potential impacts from Covered Activities on California forest and woodland natural communities are located mostly in the Pinto Lucerne Valley and Eastern Slopes subarea; chaparral and coastal scrubs potential impacts are primarily located within the West Mojave and Eastern Slopes and Pinto Lucerne Valley and Eastern Slopes subareas; and the majority of the grassland natural communities affected by Covered Activities would occur in the West Mojave and Eastern Slopes subarea. Therefore, with the distribution of renewable energy development and the location of these natural communities that are sensitive to fire management techniques, the primary areas of vegetation degradation would be located in the West Mojave and Eastern Slopes as well as the Pinto Lucerne Valley and Eastern Slopes subareas, which would experience the majority of the impacts in the Plan Area to these natural communities.

The potential degradation of vegetation due to fire and fire management would vary depending on project-specific factors, such as size of the project footprint and proximity to fire prone areas. However, under Alternative 3 avoidance and minimization CMAs would be implemented to minimize the potential adverse operational effects of fire and fire management. Specifically, AM-PW-12 would require projects to use standard practices for fire prevention/protection that would minimize the amount of vegetation clearing and fuel modification. Additionally AM-RES-RL-ICS-5 would require fire suppression activities to minimize the amount of desert tortoise habitat burned in the reserve design envelope.

These measures would minimize the amount of vegetation degradation from fire and fire management during siting, construction, and operational Covered Activities.

Invasive Plants

The introduction of invasive plants can be caused by siting, construction, and operational Covered Activities including transportation of invasive plants on the undercarriage of vehicles, creation of disturbed areas, and other environmental changes that favor invasive plant growth. Invasive plants can degrade vegetation by increasing the fuel load and the frequency of fires in plant communities and may induce allelopathic effects that hinder the growth or establishment of other plant species. Most vegetation, including natural communities and plant Covered Species, are generally susceptible to the adverse effects of invasive plants. As such, the most vegetation degradation caused by introduction of invasive plants would occur in the areas with the greatest amount of natural community and plant Covered Species impacts due to renewable energy development. Under the Alternative 3 these impacts to natural communities would occur primarily in the West Mojave and Eastern Slopes and to a lesser extent in the Imperial Borrego Valley, Cadiz Valley and Chocolate Mountains, as well as the Pinto Lucerne Valley and Eastern Slopes subareas.

The potential vegetation degradation effects that could result from siting, construction, and operational Covered Activities would be minimized through implementation of avoidance and minimization CMAs under Alternative 3. Specifically, the Plan-wide CMA AM-PW-7 would ensure the timely restoration of temporarily disturbed areas that could otherwise promote invasive plants during operations. Additional CMAs would require the use of standard practices to control weeds and invasive plants (AM-PW-11) and require the responsible use of herbicides to minimize potential vegetation degradation (AM-PW-15) for all Covered Activities throughout the Plan Area.

Impact BR-4: Siting, construction, decommissioning, and operational activities would result in loss of listed and sensitive plants; disturbance, injury, and mortality of listed and sensitive wildlife; and habitat for listed and sensitive plants and wildlife.

The following provides an analysis of the impacts of the development of Covered Activities on sensitive plants and wildlife and their habitat in the Plan Area, including Covered Species and non-Covered Species. In addition to the analysis of the loss of sensitive species and their habitat provided here under Impact BR-4, impacts to nesting birds are addressed under Impact BR-5, impacts on wildlife movement are addressed under Impact BR-6, impacts of habitat fragmentation are addressed under Impact BR-7, impacts of increased predation are addressed under Impact BR-8, and impact of operations on avian, bat, and insect species are addressed under Impact BR-9.

The impact analysis under Impact BR-4 includes the following subsections:

- Covered Species Habitat Impact Analysis by Ecoregion Subarea
- Specific Covered Species Impact Analyses
- Indirect and Terrestrial Operational Impact Analysis
- Non-Covered Species Impact Analysis

Covered Species Habitat Impact Analysis by Ecoregion Subarea

Impacts to plant and wildlife species and their habitat would result from the implementation of Covered Activities. Table IV.7-208 provides the Plan-wide impact analysis for Covered Species habitat. As described in Section IV.7.1.1, the reported impact acreage is based on the overlap of the DFAs and the modeled Covered Species habitat times the proportion of the impacts from Covered Activity development anticipated with the DFA. The majority of impacts to plant and wildlife species and their habitat under Alternative 3 would occur in the Imperial Borrego Valley, West Mojave and Eastern Slopes, and Cadiz Valley and Chocolate Mountains subareas as described below. Impacts to plant and wildlife species and their habitat under Alternative 3 would also occur in the following subareas: Mojave and Silurian Valley, Owens River Valley, Panamint Death Valley, Pinto Lucerne Valley and Eastern Slopes, and Providence and Bullion Mountains. Supplemental impact analysis tables for impacts to Covered Species habitat by ecoregion subarea are provided in Appendix R2.

West Mojave and Eastern Slopes Ecoregion Subarea

Renewable energy development in the West Mojave and Eastern Slopes subarea would mostly be from solar development, but would also include impacts from wind and transmission development. Typical impacts from these Covered Activities on plant and wildlife species and their habitat is described in Section IV.7.2. Impacts to suitable habitat for amphibians and reptiles would occur in this subarea, including Agassiz's desert tortoise and Mojave fringe-toed lizard. The siting of the DFAs under Alternative 3 largely avoid habitat for Mojave fringe-toed lizard, and CMAs requiring avoidance of and setbacks from dune habitat (AM-DFA-RIPWET-1 and AM-DFA-DUNE-1) would further avoid and minimize the impacts on these species to less than the acreage reported in Table IV.7-208.

There are impacts to suitable habitat for several bird Covered Species in the West Mojave and Eastern Slopes subarea, including Bendire's thrasher, burrowing owl, California condor, golden eagle, least Bell's vireo, mountain plover, southwestern willow flycatcher, Swainson's hawk, and tricolored blackbird. CMAs require avoidance of and setbacks from riparian habitat and wetland habitat would further avoid and minimize the impacts on least Bell's vireo, southwestern willow flycatcher, and tricolored blackbird to less than the

acreage reported in Table IV.7-208. Additionally, the CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs.

Suitable habitat for bighorn sheep, desert kit fox, Mohave ground squirrel, pallid bat, and Townsend's big-eared bat would be impacted in this subarea. The siting of the DFAs under Alternative 3 largely avoid habitat for bighorn sheep. The CMAs require avoidance of and setbacks from riparian and wetland habitat (AM-DFA-RIPWET-1) that would further reduce the impacts on these habitats used by Mohave ground squirrel, pallid bat, and Townsend's big-eared bat to less than the acreage reported in Table IV.7-208. Compensation CMAs would offset habitat loss for these species.

Suitable habitat for the following plant species would be impacted in the West Mojave and Eastern Slopes subarea: alkali mariposa-lily, Bakersfield cactus, Barstow woolly sunflower, desert cymopterus, Mojave monkeyflower, and Mojave tarplant. Although modeled suitable habitat for these species may be impacted by Covered Activities in this subarea, the CMAs require surveys for plant Covered Species for all Covered Activities, and the CMAs requiring avoidance of and setbacks from occupied habitat (AM-DFA-PLANT-1 through AM-DFA-PLANT-3) would further reduce the impacts on these species to less than the acreage reported in Table IV.7-208.

Cadiz Valley and Chocolate Mountains Ecoregion Subarea

Renewable energy development within the Cadiz Valley and Chocolate Mountains subarea would be primarily from solar energy development, but would also include impacts from wind and transmission. Impacted suitable habitat would be mostly desert scrub in this subarea. The Cadiz Valley and Chocolate Mountains subarea provides suitable habitat for amphibians and reptiles, including Agassiz's desert tortoise and Mojave fringe-toed lizard, that would be impacted. The siting of the DFAs under Alternative 3 largely avoid habitat for Mojave fringe-toed lizard, and CMAs requiring avoidance of and setbacks from dune habitat (AM-DFA-DUNE-1 through AM-DFA-DUNE-3) would further avoid and minimize the impacts on this species to less than the acreage reported in Table IV.7-208. Compensation CMAs would offset habitat loss for these species.

Impacts would occur to the following covered bird species in this subarea: Bendire's thrasher, burrowing owl, California black rail, Gila woodpecker, golden eagle, greater sandhill crane, mountain plover, and western yellow-billed cuckoo. CMAs require avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further avoid and minimize the impacts on California black rail and western yellow-billed cuckoo to less than the acreage reported in Table IV.7-208.

Impacts to suitable habitat for the following mammal Covered Species would occur in the Cadiz Valley and Chocolate Mountains subarea: bighorn sheep, California leaf-nosed bat, pallid bat, and Townsend's big-eared bat. Burro deer and desert kit fox (Planning Species)

would also be impacted. The siting of the DFAs under Alternative 3 largely avoid habitat for bighorn sheep. The CMAs require avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further reduce the impacts on these habitats used by California leaf-nosed bat, pallid bat, and Townsend's big-eared bat to less than the acreage reported in Table IV.7-208.

No impacts to suitable habitat for covered plant species are expected in the Cadiz Valley and Chocolate Mountains subarea under Alternative 3. Furthermore, the CMAs require surveys for plant Covered Species for all Covered Activities, and there are CMAs requiring avoidance of and setbacks from occupied habitat (AM-DFA-PLANT-1 through AM-DFA-PLANT-3).

Imperial Borrego Valley Ecoregion Subarea

Renewable energy development within the Imperial Borrego Valley subarea would be primarily from solar energy development, but would also include impacts from wind, geothermal, and transmission development. Impacts would occur to desert outcrop and badland, desert scrub, and wetland communities. The Imperial Borrego Valley subarea provides suitable habitat for Agassiz's desert tortoise and flat-tailed horned lizard that would be impacted. The siting of the DFAs under Alternative 3 largely avoid habitat for flat-tailed horned lizard, and CMAs requiring avoidance of and setbacks from dune habitat (AM-DFA-DUNE-1 through AM-DFA-DUNE-3) would further avoid and minimize the impacts on this species to less than the acreage reported in Table IV.7-208.

Impacts would occur to suitable habitat for the following bird Covered Species in this subarea: Bendire's thrasher, burrowing owl, California black rail, Gila woodpecker, golden eagle, greater sandhill crane, least Bell's vireo, mountain plover, southwestern willow flycatcher, Swainson's hawk, tricolored blackbird, western yellow-billed cuckoo, and Yuma clapper rail. CMAs require avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further avoid and minimize the impacts on southwestern willow flycatcher, tricolored blackbird, least Bell's vireo, California black rail, and Yuma clapper rail to less than the acreage reported in Table IV.7-208. Additionally, the CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs (AM-DFA-AG-2).

Impacts to suitable habitat for desert pupfish, the only fish species with suitable habitat in this subarea, would total approximately 200 acres. The avoidance and setback provisions for managed wetlands and agricultural drains (AM-DFA-RIPWET-1) would conserve wetland and riparian features within the agricultural matrix and provide conservation benefits to desert pupfish.

Only minimal impacts (approximately 100 acres) would occur to bighorn sheep mountain habitat in this subarea. Impacts to suitable habitat for other covered mammals species would occur for California leaf-nosed bat, pallid bat, and Townsend's big-eared bat. Impacts would also occur for the Planning Species burro deer and desert kit fox. The siting of the

DFAs under Alternative 3 largely avoid habitat for bighorn sheep. The CMAs require avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further reduce the impacts on these habitats used by California leaf-nosed bat, pallid bat, and Townsend's big-eared bat to less than the acreage reported in Table IV.7-208.

Table IV.7-208
Plan-wide Impact Analysis for Covered Species Habitat – Alternative 3

Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Amphibian/Reptile						
Agassiz's desert tortoise	9,858,000	40,000	3,000	900	8,000	51,000
Flat-tailed horned lizard	758,000	14,000	20	7,000	5,000	26,000
Mojave fringe-toed lizard	1,094,000	7,000	100	-	3,000	10,000
Tehachapi slender salamander	48,000	-	-	-	-	-
Bird						
Bendire's thrasher	2,141,000	5,000	400	700	2,000	8,000
Burrowing owl	5,269,000	99,000	4,000	13,000	20,000	136,000
California black rail	197,000	2,000	10	1,000	900	4,000
California condor	1,240,000	17,000	800	90	1,000	20,000
Gila woodpecker	106,000	500	10	100	300	900
Golden eagle–foraging	10,747,000	18,000	900	900	7,000	26,000
Golden eagle–nesting	4,443,000	800	40	20	2,000	3,000
Greater sandhill crane	617,000	34,000	300	8,000	7,000	50,000
Least Bell's vireo	226,000	200	10	20	90	300
Mountain plover	828,000	43,000	700	8,000	8,000	59,000
Southwestern willow flycatcher	317,000	5,000	80	2,000	1,000	8,000
Swainson's hawk	1,455,000	38,000	1,000	5,000	5,000	50,000
Tricolored blackbird	271,000	9,000	400	20	200	10,000
Western yellow-billed cuckoo	152,000	300	10	-	40	400
Yuma clapper rail	51,000	50	-	20	10	80
Fish						
Desert pupfish	8,000	100	-	50	60	200
Mohave tui chub	300	-	-	-	-	-
Owens pupfish	18,000	50	-	-	20	70
Owens tui chub	17,000	50	-	-	20	70

Table IV.7-208
Plan-wide Impact Analysis for Covered Species Habitat – Alternative 3

Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Mammal						
Bighorn sheep – inter-mountain habitat	3,854,000	4,000	100	90	2,000	6,000
Bighorn sheep – mountain habitat	6,649,000	3,000	400	10	3,000	7,000
California leaf-nosed bat	7,133,000	21,000	300	4,000	9,000	34,000
Mohave ground squirrel	2,383,000	27,000	2,000	900	4,000	33,000
Pallid bat	16,412,000	71,000	3,000	8,000	20,000	101,000
Townsend's big-eared bat	14,677,000	69,000	3,000	8,000	19,000	99,000
Plant						
Alkali mariposa-lily	119,000	3,000	200	-	100	4,000
Bakersfield cactus	278,000	1,000	40	-	60	1,000
Barstow woolly sunflower	154,000	700	40	-	10	700
Desert cymopterus	205,000	1,000	40	-	10	1,000
Little San Bernardino Mountains linanthus	289,000	1,000	100	-	100	1,000
Mojave monkeyflower	161,000	400	50	-	200	700
Mojave tarplant	265,000	80	-	60	200	300
Owens Valley checkerbloom	147,000	400	-	-	200	600
Parish's daisy	188,000	1,000	200	-	400	2,000
Triple-ribbed milk-vetch	8,000	-	-	-	-	-

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
[2] Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Specific Covered Species Impact Analyses

Desert Tortoise

For Agassiz's desert tortoise, desert tortoise important areas were identified that include tortoise conservation areas (TCAs), desert tortoise linkages, and desert tortoise high priority habitat (see desert tortoise BGOs in Appendix C).

Under Alternative 3, DFAs occur within TCAs in the northern Fremont Valley (in the area converted to intensive agriculture), and DFAs overlap with the boundaries of the Desert Tortoise Research Natural Area, West Rand Mountains, and Fremont-Kramer TCAs. CMAs would require avoidance of all TCAs, except for impacts associated with transmission or impacts in agricultural portion of TCA in northern Fremont Valley (AM-DFA-ICS-5). DFAs abut TCAs in the following areas: in the West Mojave – 2 ecoregion subunit (the Desert Tortoise Research Natural Area), in the Pinto – 1 ecoregion subunit in upper Lucerne Valley (Ord-Rodman), and in the Cadiz – 1 ecoregion subunit in east Riverside (Chuckwalla). Impacts from anticipated transmission development would occur in the Superior-Cronese TCA and Chuckwalla TCA under Alternative 3. Under Alternative 3, DFAs overlap desert tortoise linkages in the Pinto – 1 ecoregion subunit in the Ord Rodman to Joshua Tree National Park linkage. While many of the DFAs were developed based on highly disturbed or fragmented lands, some DFAs were the result of public scoping and are included to address the need for greater flexibility for renewable energy development. While attempts were made to avoid the most sensitive areas, some DFAs do overlap sensitive desert tortoise resources.

Table IV.7-209 provides an impact analysis for these desert tortoise important areas, organized by desert tortoise Recovery Units: Colorado Desert, Eastern Mojave, and Western Mojave. Within the Colorado Desert Recovery Unit, approximately 5,000 acres of TCAs, linkage habitat, and high priority habitat would be impacted under Alternative 3. Within the Eastern Mojave Recovery Unit, no desert tortoise important areas would be impacted under Alternative 3. Within the Western Mojave Recovery Unit, approximately 14,000 acres of TCAs and linkage habitat would be impacted under Alternative 3.

Table IV.7-209
Plan-wide Impact Analysis for Desert Tortoise Important Areas – Alternative 3

Recovery Unit	Desert Tortoise Important Areas	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Colorado Desert	High Priority Habitat	387,000	70	-	-	40	100
	Linkage	469,000	400	20	-	40	500

Table IV.7-209
Plan-wide Impact Analysis for Desert Tortoise Important Areas – Alternative 3

Recovery Unit	Desert Tortoise Important Areas	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
	TCA	3,130,000	800	30	-	4,000	5,000
Colorado Desert Total		***3,986,000***	***1,000***	*50*	**-**	***4,000***	***5,000***
Eastern Mojave	Linkage	784,000	-	-	-	-	-
	TCA	2,096,000	-	-	-	-	-
Eastern Mojave Total		***2,880,000***	-	-	-	-	-
Western Mojave	Linkage	1,204,000	10,000	800	-	1,000	12,000
	TCA	2,313,000	900	30	-	1,000	2,000
Western Mojave Total		***3,517,000***	***11,000***	*800*	**-**	***3,000***	***14,000***
Total		10,383,000	12,000	900	-	6,000	19,000

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Ares.

[2] Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Approximately 4,143,000 acres of USFWS-designated critical habitat for desert tortoise occurs in the Plan Area (excluding military, Open OHV Areas, and tribal lands). Although the TCAs include desert tortoise critical habitat, these two areas are not entirely the same geographically. Alternative 3 would result in approximately 6,000 acres (approximately 0.1% of the total critical habitat for desert tortoise in the Plan Area) of impact to desert tortoise critical habitat. Approximately 80% (5,000 acres) would occur in the Chuckwalla critical habitat unit and the majority of that impact from transmission impacts. Approximately 800 acres of impact, largely from transmission development, would occur in the Superior-Cronese critical habitat unit, and approximately 300 acres of impact would occur in the Ord-Rodman critical habitat unit from transmission development. As described in Volume II, transmission impacts assume resources are impacted within the entire right-of-way width that varies by transmission line voltage. Transmission development does not preclude the use of the area by tortoise, but does lead to the potential for increased risk of predation or striking by vehicles associated with access roads to support transmission lines.

CMAs would require avoidance of TCAs, except for impacts associated with transmission or impacts in disturbed portions of TCAs. Additionally, the CMAs would prohibit impacts that affect the viability of desert tortoise linkages (AM-DFA-ICS-1 and AM-DFA-ICS-3 through 15).

Compensation CMAs would be required for impacts to desert tortoise, including desert tortoise important areas.

Flat-tailed Horned Lizard

For flat-tailed horned lizard, flat-tailed horned lizard (FTHL) management areas were identified in the FTHL Rangewide Management Strategy (RMS). The FTHL management areas cover approximately 393,000 acres in the Plan Area (excluding military, Open OHV Areas, and tribal lands) and include the following units: Borrego Badlands, East Mesa, Ocotillo Wells, West Mesa, and Yuha Basin. Approximately 9,000 acres of impact to FTHL management areas would result from Covered Activities under Alternative 3, in the East Mesa, Ocotillo Wells, West Mesa, and Yuha Basin units. Avoidance and minimization CMAs (AM-DFA-ICS-16 and AM-PW-1 through 17) would avoid and minimize impacts to flat-tailed horned lizard. Compensation CMAs would offset habitat loss for flat-tailed horned lizard.

Bendire's Thrasher

Bendire's thrasher habitat occurs in scattered locations across the Mojave and Sonoran/Colorado deserts of the Plan Area. As shown in Table IV.7-208, approximately 8,000 acres of impacts to habitat for Bendire's thrasher would occur under Alternative 3. Avoidance and minimization CMAs (AM-DFA-ICS-17 and AM-PW-1 through 17) would avoid and minimize impacts to Bendire's thrasher. Compensation CMAs would offset habitat loss for Bendire's thrasher.

California Condor

California condor nesting has not been documented in the Plan Area and condor use of the Plan Area is limited to foraging and temporary roosting. As shown in Table IV.7-208, approximately 20,000 acres of impacts to potential foraging and temporary roosting habitat for California condor would occur throughout the Plan Area. As specified in AM-DFA-ICS-18, take of California condor will be avoided by Covered Activities. Additionally, the other condor CMAs (AM-DFA-ICS-19 through 25) and the Plan-wide avoidance and minimization CMAs (AM-PW-1 through 17) would further avoid and minimize impacts to California condor. Compensation CMAs would offset foraging and temporary roosting habitat loss for California condor.

Golden Eagle

In addition to the analysis of impacts to nesting and foraging habitat summarized in Table IV.7-208, a territory-based analysis was conducted for golden eagle (see methods and results in the Chapter IV.7 portion of Appendix R2). Using the golden eagle nest database, golden eagle territories were identified and individually buffered by 1 mile (representing

breeding areas around known nests) and 4 miles (representing use areas around known nests). From the 420 nest locations known from the Plan Area, a total of 161 territories were identified in available lands of the Plan Area. Under Alternative 3, 36 territories have DFAs or transmission corridors within 1 mile of a nest. Implementation of the CMAs for golden eagles (AM-DFA-ICS-2) would prohibit siting or construction of Covered Activities within 1 mile of an active golden eagle nest; therefore, impacts within 1 mile of these golden eagle territories would be avoided. Under Alternative 3, 70 territories have DFAs or transmission corridors within 4 miles of nest, and the use area of these territories could be impacted through harassment, increased risk of striking hazards, and reduced foraging opportunities by Covered Activities depending of the siting of specific projects. The CMAs for golden eagles (Section II.3.1.2.5) and the approach to golden eagles (see Appendix H) describes how the impact to golden eagles would be avoided, minimized, and compensated. Based on the 2013 analysis, no more than 15 golden eagles per year in 2014 would be allowed to be taken within the Plan Area, which would be reassessed annually.

Desert Bighorn Sheep

For desert bighorn sheep, bighorn sheep mountain habitat and intermountain (linkage) habitat have been identified in the Plan Area. Under Alternative 3, approximately 7,000 acres of mountain habitat and 6,000 acres of intermountain habitat would be impacted. A majority of these impacts would occur in the Pinto Lucerne Valley and Eastern Slopes ecoregion subarea in the Lucerne Valley area and in the Panamint Death Valley ecoregion subarea in the Searles Lake area. The SAA in the Silurian Valley occurs within bighorn sheep mountain and intermountain habitat. Alternative 3 identified DFAs that largely avoid impacts to bighorn sheep mountain and intermountain habitat; however, impacts would occur in the Pinto Lucerne Valley and Eastern Slopes subarea. Avoidance, minimization, and compensation CMAs have been developed to offset the loss of habitat for bighorn sheep.

Although the Peninsular bighorn sheep Distinct Population Segment (DPS) is not a Covered Species, approximately 47,000 acres of USFWS-designated critical habitat for the Peninsular bighorn sheep DPS occurs in the Plan Area (excluding military, Open OHV Areas, and tribal lands). These critical habitat units include Carrizo Canyon and South Santa Rosa Mountain. Alternative 3 would not result in any impacts to critical habitat for the Peninsular bighorn sheep DPS.

Mohave Ground Squirrel

Mohave ground squirrel important areas were identified that include key population centers, linkages, expansion areas, and climate change extension areas (see Mohave ground squirrel BGOs in Appendix C).

Under Alternative 3, impacts to key population centers for Mohave ground squirrel would occur primarily in the West Mojave – 2 ecoregion subunit in the North of Edwards area. Impacts to Mohave ground squirrel linkages under Alternative 3 would occur primarily in the Owens – 1 and Panamint -1 ecoregion subunits west of China Lake. Impacts to Mohave ground squirrel expansion areas would occur primarily in the Owens – 1, West Mojave – 2, and West-Mojave - 6 ecoregion subunits, and impacts to the climate change extension areas would occur only in a limited area of the Owens – 1 ecoregion subunit.

Table IV.7-210 provides an impact analysis for these Mohave ground squirrel important areas. Under Alternative 3, a total of approximately 10,000 acres of impact to key population centers, linkages, expansion areas, and climate change extension areas would occur under Alternative 3. The CMAs would prohibit impacts that affect the viability of linkages (AM-DFA-ICS-36 through AM-DFA-ICS-43). Compensation CMAs would be required for impacts to Mohave ground squirrel, including Mohave ground squirrel important areas.

Table IV.7-210
Plan-wide Impact Analysis for Mohave Ground Squirrel Important Areas – Alternative 3

Mohave Ground Squirrel Important Area Type	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Key Population Center	507,000	2,000	70	100	500	3,000
Linkage	386,000	700	-	500	700	2,000
Expansion Area	552,000	3,000	90	400	200	4,000
Climate Change Extension	224,000	900	-	-	300	1,000
Total	**1,669,000**	**7,000**	**200**	**1,000**	**2,000**	**10,000**

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
[2] Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Dune Covered Species[1]

Dune Covered Species include Mojave fringe-toed lizard. Although Table IV.7-208 shows impacts to Mojave fringe-toed lizard, impacts to the primary habitat areas used by these species would be avoided through the CMAs that require avoidance of and setbacks from dunes (AM-DFA-DUNE-1 through 3). Additionally, the Plan-wide and landscape-level avoidance and minimization CMAs (AM-PW-1 through 17 and AM-LL-3) would further avoid and minimize impacts to dune Covered Species. Compensation CMAs would offset habitat loss for dune Covered Species.

Riparian and Wetland Covered Species[2]

Covered Species associated with riparian and wetland habitats include Tehachapi slender salamander, California black rail, Gila woodpecker, least Bell's vireo, southwestern willow flycatcher, tricolored blackbird, western yellow-billed cuckoo, Yuma clapper rail, Mohave tui chub, Owens pupfish, and Owens tui chub. Although Table IV.7-208 shows impacts to suitable habitat for some of these riparian and wetland Covered Species, impacts to the primary habitat areas used by these species would be avoided through the CMAs that require avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1 through 9). Additionally, the Plan-wide and landscape-level avoidance and minimization CMAs (AM-PW-1 through 17 and AM-LL-2) would further avoid and minimize impacts to riparian and wetland Covered Species. Compensation CMAs would offset habitat loss for these species.

Approximately 6,000 acres of USFWS-designated critical habitat for southwestern willow flycatcher occurs in the Plan Area (excluding military, Open OHV Areas, and tribal lands). These critical habitat units include Amargosa River, Mojave River, and Willow Creek. Alternative 3 would not result in any impacts to critical habitat for southwestern willow flycatcher.

Approximately 800 acres of USFWS-designated critical habitat for desert pupfish occurs in the Plan Area (excluding military, Open OHV Areas, and tribal lands). These critical habitat units include Carrizo Wash, Fish Creek Wash, and San Felipe Creek. Alternative 3 would not result in any impacts to critical habitat for desert pupfish.

The USFWS proposed to designate yellow-billed cuckoo critical habitat on August 15, 2014 at the time the DRECP Draft EIR/EIS was going to print. As such, the proposed yellow-billed

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1 Flat-tailed horned lizard and plant Covered Species are also known to be associated with dunes but these species are addressed separately.

2 Some of the riparian and wetland Covered Species discussed here also use other non-wetland and non-riparian natural communities.

cuckoo critical habitat was not addressed in the Draft EIR/EIS, but will be addressed in the Final EIR/EIS.

Covered Species associated with Agricultural Lands[3]

Covered Species associated with agricultural lands include burrowing owl, greater sandhill crane, mountain plover, Swainson's hawk, and desert pupfish. As shown in Table IV.7-208, impacts to Covered Species associated with agricultural lands would occur, primarily in the Imperial Valley, Palo Verde Valley, and Antelope Valley. Specific surveys, setbacks, and other CMAs have been developed to avoid and minimize impacts of Covered Activities on these species (AM-DFA-AG-1 through 7). Compensation CMAs would offset habitat loss for these species.

Bat Covered Species

Bat Covered Species include California leaf-nosed bat, pallid bat, and Townsend's big-eared bat. As shown in Table IV.7-208, impacts to suitable habitat for bat Covered Species would occur throughout the Plan Area; however, impacts to roost sites and areas around roost sites would be avoided and minimized through the CMAs specific to bat species (AM-DFA-BAT-1). Additionally, the Plan-wide avoidance and minimization CMAs (AM-PW-1 through 17) would further avoid and minimize impacts to bat Covered Species. Compensation CMAs would offset habitat loss for these species.

Plant Covered Species

Plant Covered Species include alkali mariposa-lily, Bakersfield cactus, Barstow woolly sunflower, Desert cymopterus, Little San Bernardino Mountains linanthus, Mojave monkeyflower, Mojave tarplant, Owens Valley checkerbloom, Parish's daisy, and Triple-ribbed milk-vetch. As shown in Table IV.7-208, Alternative 3 would result in impact to suitable habitat for these species; however, the CMAs require surveys for plant Covered Species for all Covered Activities, and the CMAs requiring avoidance of and setbacks from occupied habitat (AM-DFA-PLANT-1 through AM-DFA-PLANT-3) would avoid the direct loss of habitat occupied by these species. Compensation CMAs would offset habitat loss for the plant Covered Species.

Approximately 2,000 acres of USFWS-designated critical habitat for Parish's daisy occurs in the Plan Area (excluding military, Open OHV Areas, and tribal lands). The critical habitat unit is the Northeast Slope. Alternative 3 would not result in any impacts to critical habitat for Parish's Daisy.

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[3] Some of the Covered Species discussed here as associated with agricultural lands also use non-agricultural lands.

To avoid and minimize the potential loss of Covered Species from Covered Activities, a range of species-specific CMAs have been developed and are highlighted below:

- CMAs require habitat assessments for all Covered Activities and pre-construction surveys for Tehachapi slender salamander, Mojave fringe-toed lizard, desert tortoise, flat-tailed horned lizard, riparian and wetland bird Covered Species, burrowing owl, greater sandhill crane, Swainson's hawk, Bendire's thrasher, golden eagle, Mohave ground squirrel, bat Covered Species, and plant Covered Species (see Section II.3.1.2.5.4 and Section II.3.1.2.5.5).
- Setbacks from individual species would be required from active nests of Bendire's thrasher, California condor, Gila woodpecker, and golden eagle.
- Covered Activities and other development in areas that potentially affect the amount of sand entering or transported within Aeolian transport corridors will be designed and operated to minimize mortality to Covered Species (AM-LL-3).
- In addition, a bird and bat use and mortality monitoring program will be implemented during operations using current protocols and best procedures available at time of monitoring. Covered Activities that are likely to impact bird and bat Covered Species during operation will develop and implement a project-specific Bird and Bat Operational Strategy (BBOS) that meets the approval of the appropriate DRECP Coordination Group (AM-LL-4).
- Covered Activities will include appropriate design features using the most current information from the Flat-tailed Horned Lizard Rangewide Management Strategy (RMS) and RMS Interagency Coordinating Committee (ICC) to reduce mortality (AM-DFA-ICS-15).
- If Bendire's thrasher are present, CMAs require biological monitoring to ensure that individuals are not directly affected by operations (i.e., mortality or injury, direct impacts on nest, eggs, or fledglings).
- For Covered Activities where ongoing take of eagles is anticipated, and take of eagles will be authorized under DRECP, federal regulations require that any authorized take must be unavoidable after the implementation of advanced conservation practices (ACPs) (AM-DFA-ICS-29). ACPs are "scientifically supportable measures" approved by the USFWS and represent the best available techniques to reduce eagle disturbance and ongoing mortalities to a level where remaining take is unavoidable" (50 CFR 22.3).
- CMAs also require monitoring and enforcement of vehicular restrictions and travel off designated routes to prevent mortality to Covered Species associated with dunes (AM-RES-BLM-DUNE-2).

Indirect and Terrestrial Operational Impact Analysis

Siting, construction, and operational Covered Activities could result in the potential disturbance, injury, and mortality of listed and sensitive wildlife from noise, predator avoidance behavior, as well as light and glare. The degree to which these factors contribute to the disturbance of sensitive wildlife corresponds to the distribution of Covered Activities in the Plan Area that would result in noise, predator avoidance behavior, or light and glare. As described in Section IV.7.2.1, the extent of some of these effects may exist at or beyond the source of these effects, the project footprint, or the project area depending on the type of effect and other environmental considerations. As such, the adverse effects caused by these factors would correspond to the overlap between the location of sensitive wildlife, represented by the Covered Species models, and the likely distribution of Covered Activities across subareas.

Under Alternative 3, approximately 7% of the total Plan Area, would be DFAs that allow renewable energy development. Based on the planned renewable energy generation and transmission under Alternative 3 (a total of 182,000 acres of impact), the creation of noise, predator avoidance behavior, as well as light and glare would collectively result in the terrestrial operational impacts shown in Table IV.7-208. These impacts would mostly occur in the Imperial Borrego Valley, West Mojave and Eastern Slopes, Cadiz Valley and Chocolate Mountains, and the Pinto Lucerne Valley and Eastern Slopes subareas. As a result, these subareas would have the greatest potential to create noise, predator avoidance behavior, and light and glare resulting in disturbance of sensitive wildlife.

Noise

Noise caused by mechanical equipment, vehicle usage, and human activities during siting, construction, and operations can cause physical damage such as hearing loss as well as behavioral changes in habitat use, activity patterns, reproduction, and foraging. Birds during the nesting seasons are expected to be particularly sensitive to noise effects from the siting, construction, and operation of renewable energy facilities. For bird Covered Species the Imperial Borrego Valley and West Mojave and Eastern Slopes are the subareas primarily affected. Smaller mammals, such as the Mohave ground squirrel, and reptiles, such the Mojave fringe-toed lizard and flat-tailed horned lizard, could be adversely affected by intense noise (and related vibration that could collapse burrows), and potentially subject to increased predation if noise affects their ability to detect predators. Effects on the habitat for these Covered Species mostly occurs in the West Mojave and Eastern Slopes Pinto Lucerne Valley and Eastern Slopes, Cadiz Valley and Chocolate Mountains, and the Imperial Borrego Valley subareas. As such, the disturbance of wildlife from noise would predominantly occur in the West Mojave and Eastern Slopes subarea and the Imperial Borrego Valley subareas.

The disturbance and injury of wildlife from noise-related effects would also be minimize through the implementation of avoidance and minimization CMAs under Alternative 3. The CMA AM-PW-13 would reduce noise generated from Covered Activities using standard practices throughout the entire Plan Area. Additionally, various CMAs that would avoid and setback Covered Activities from noise-sensitive wildlife including seasonal setbacks for nesting birds; setbacks from riparian and wetland habitat benefitting bids, amphibians, and small mammals; and avoidance of Mohave ground squirrel's during operations (AM-DFA-RIPWET-1, AM-DFA-RIPWET-5, and AM-DFA-ICS-36). Therefore, potential disturbance of wildlife from noise during siting, construction, and operations would be minimized by these measures.

Predator Avoidance Behavior

Predator avoidance behavior can occur in some wildlife in response to human activities during operation and maintenance. Predator avoidance behavior can lead to increased physiological stress, reduced suitable foraging habitat, and can affect reproduction. Different wildlife species may have varying sensitivities to predator avoidance behavior and may experiences different magnitudes of responses to Covered Activities. Desert bighorn sheep use visual cues to assess and escape predators and may not utilize foraging habitat or water sources in proximity to Covered Activities. Other species that may experience behavioral changes that reduce foraging opportunities or lead to avoidance of suitable foraging habitat including nesting bird species. These wildlife species are spread throughout the Plan Area; however, the greatest amount of terrestrial operational impacts would be located in the Imperial Borrego Valley and West Mojave and Eastern Slopes subareas. The Cadiz Valley and Chocolate Mountains as well as the Pinto Lucerne Valley and Eastern Slopes would also experience fewer terrestrial operational impacts, and thus less potential predator avoidance behavior than that expected for the Imperial Borrego Valley and West Mojave and Eastern Slopes subareas.

Under Alternative 3, avoidance and minimization CMAs for siting Covered Activities away from sensitive wildlife habitat would be implemented for riparian and wetland habitat, wildlife species that inhabit agricultural lands, and for particular species such as the Mohave ground squirrel (AM-DFA-RIPWET-1, AM-DFA-RIPWET-5, AM-DFA-AG-2, and AM-DFA-ICS-36). Additional CMAs would inform workers of actions that could potentially induce predator avoidance behavior and restrict activities that could disturb wildlife and their access to water and foraging habitat (AM-PW-5, AM-PW-13, AM-RES-RL-DUNE-2, AM-DFA-RIPWET-12 and AM-RES-RL-ICS-14). The potential disturbance of wildlife from predator avoidance behavior caused by siting, construction, and operational Covered Activities would be minimized by these measures.

Light and Glare

Light and glare are created by Covered Activity development which involves both light for security and to avoid aviation collisions and glare from reflective surfaces. Exposure of wildlife to light and glare can alter wildlife behavior including foraging, migration, and breeding. Both light and glare can be experienced beyond the project footprint or project area, extending their adverse effects on wildlife outside of these locations. Solar projects would produce increased levels of glare due to the large amount of reflective panel or heliostat surfaces and would have greater effects on wildlife than other renewable energy technologies. Potential adverse effects associated with light and glare from solar projects, including solar flux and bird collisions from the lake effect are analyzed in BR-9. As described above, based on the planned renewable energy generation and transmission under Alternative 3, terrestrial operational impacts would mostly occur in the Imperial Borrego Valley and West Mojave and Eastern Slopes subareas. Similarly, impacts from solar projects throughout the Plan Area would primarily occur in the Imperial Borrego Valley, West Mojave and Eastern Slopes, and Cadiz Valley and Chocolate Mountains subareas, which would contain most of terrestrial operational impacts from solar development.

Lighting can act through various biological mechanisms and can result in greatly different adverse effects to individual species. Diurnal predators, such as bats and insectivorous birds may exploit night lighting that increases prey detectability, while nocturnal prey species may reduce their foraging activity in lighted areas. Impacts to habitat for bats from Covered Activities would mainly be located in the West Mojave and Eastern Slopes and Imperial Borrego Valley subareas, and to a lesser extent in the Pinto Lucerne Valley and Eastern Slopes as well as the Cadiz Valley and Chocolate Mountains subareas. Migratory birds that fly during the night may be affected by aviation safety lighting on high structures such as met towers and turbines. For bird Covered Species the Imperial Borrego Valley and West Mojave and Eastern Slopes are the subareas primarily affected, containing most of the total Plan-wide impacts to bird Covered Species habitat. Therefore, considering the distribution of potential renewable energy development and impacts on habitat for species sensitive from light and glare the largest magnitude of wildlife disturbance is expected to occur in the West Mojave and Eastern Slopes and Imperial Borrego Valley subareas.

Alternative 3 would implement avoidance and minimization CMAs specifically intended to reduce effects of lighting and glare including AM-PW-14, which would implement standard practices for shielding and reducing the use of lights, as well as AM-DFA-RIPWET-4, which specifically restricts lighting within one mile of riparian or wetland vegetation. Furthermore, the appropriate siting and design of Covered Activities away from sensitive wildlife habitat would reduce disturbance from lighting and glare. Under Alternative 3, avoidance and minimization CMAs for siting Covered Activities away from wildlife that would be sensitive to the adverse effects of lighting and glare would be implemented for riparian and wetland habitat, wildlife species that inhabit agricultural lands, and for

smaller mammals (AM-DFA-RIPWET-1, AM-DFA-RIPWET-5, and AM-DFA-AG-2). These measures would minimize potential disturbance of wildlife from lighting and glare.

Non-Covered Species Impact Analysis

Potential impacts to Non-Covered Species on BLM Land were analyzed as described in Section IV.7.3.2.1. Table IV.7-211 provides an estimation of the impacts to natural communities associated with Non-Covered Species. While estimation of impacts to natural communities likely overestimates the potential impacts to Non-Covered Species habitats, it provides a general range of level of impact.

Impacts to the dune community, riparian communities, arid west freshwater emergent marsh, and Californian warm temperate marsh/seep would be avoided through implementation of CMAs, so impacts to potential habitat for each of these species is likely greater than would actually occur. For some species, impacts would be minimized through avoidance of the specific natural communities required for those species, e.g. dune-, spring-, or cave-restricted invertebrates, or riparian-obligate bird and amphibian species. For most species, the total impact to potential habitat across all technology types would be less than 1%, grasslands at approximately 2.9% and agricultural/rural land cover at approximately 7% (see Table IV.7-211)

USFWS-designated critical habitat occurs within the Plan Area (excluding military, Open OHV Areas, and tribal lands) for the following Non-Covered Species:

- Approximately 1,000 acres for Amargosa nitrophila
- Approximately 4,000 acres for the Amargosa vole
- Approximately 4,000 acres for the Arroyo Toad
- Approximately 300 acres for the Ash Meadows gumplant
- Approximately 600 acres for the Cushenbury buckwheat
- Approximately 1,000 acres for the Cushenbury milk-vetch
- Approximately 100 acres for the Cushenbury oxytheca
- Approximately 14,000 acres for the Lane Mountain milk-vetch
- Approximately 3,400 acres for the Pierson's milk-vetch
- Approximately 47,000 acres for the Peninsular bighorn sheep

Under Alternative 3, impacts to approximately 40 acres of Lane Mountain milk-vetch critical habitat would have the potential to occur from transmission. This calculation of impacts from transmission is derived from the transmission corridors overlapped with designated critical habitat, thus resulting is an overestimation of actual ground disturbance.

The results of impacts on Non-Covered Species from the creation of noise, predator avoidance behavior, and light and glare would be similar to those described for the Covered Species.

Table IV.7-211
Plan-Wide Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 3

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
California forest and woodland/ Desert conifer woodlands	Coast horned lizard, grey vireo, loggerhead shrike, yellow warbler, American badger, bighorn sheep, fringed myotis, hoary bat, long-eared myotis, pocketed free-tailed bat, spotted bat, Tehachapi pocket mouse, western mastiff bat, western small-footed myotis, Amargosa beardtongue, Charlotte's phacelia, creamy blazing star, Cushenbury buckwheat, Cushenbury milk-vetch, Cushenbury oxytheca, Kern buckwheat, Piute Mountains jewel-flower, purple-nerve cymopterus, San Bernardino Mountains dudleya, short-joint beavertail cactus, Spanish needle onion, Tracy's eriastrum, Cushenbury buckwheat	437,000	500	50	0	300	850	0.2%
Desert Scrub/ Chaparral Communities	Arroyo toad, banded gila monster, Coast horned lizard, Colorado Desert fringe-toed lizard, Couch's spadefoot, rosy boa, bald eagle, bank swallow, Crissal thrasher, Ferruginous hawk, gilded flicker, grey vireo, Le Conte's thrasher, loggerhead shrike, long-eared owl,	13,329,000	67,000	4,000	7,000	16,500	94,500	0.7%

Table IV.7-211
Plan-Wide Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 3

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	Lucy's warbler, northern harrier, yellow warbler, American badger, Arizona myotis, big free-tailed bat, bighorn sheep, cave myotis, fringed myotis, hoary bat, long-eared myotis, Palm Springs pocket mouse, pocketed free-tailed bat, spotted bat, Tehachapi pocket mouse, western mastiff bat, western small-footed myotis, western yellow bat, yellow-eared pocket mouse, Yuma myotis, Algodones Dunes sunflower, Ash Meadows gum plant, Amargosa beardtongue, bare- stem larkspur, Charlotte's phacelia, Cima milk-vetch, Coachella Valley milk-vetch, creamy blazing star, Cushenbury buckwheat, Cushenbury milk-vetch, Cushenbury oxytheca, desert pincushion, Emory's crucifixion-thorn, flat-seeded spurge, forked buckwheat, Harwood's eriastrum, Harwood's milkvetch, Inyo County star-tulip, Kelso Creek monkeyflower, Kern buckwheat, Las Animas colubrina, Lane Mountain Milk-Vetch,							

Table IV.7-211
Plan-Wide Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 3

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	Mojave Desert plum, Mojave milkweed, Munz's Cholla, nine-awned pappus grass, Orcutt's woody aster, Orocopia sage, Parish's club cholla, Pierson's milk-vetch, pink fairy-duster, Piute Mountains jewel-flower, purple-nerve cymopterus, Red Rock poppy, Red Rock tarplant, Robinson's monardella, Rusby's desert-mallow, sand food, Sodaville milk-vetch, short-joint beavertail cactus, Spanish needle onion, Thorne's buckwheat, Tracy's eriastrum, Utah beardtongue, white bear poppy, White-margined beardstongue, Wiggin's croton, Flat-seeded spurge, Parish's phacelia, Parish's alkali grass							
Dunes3/ Desert Outcrop and Badlands	Banded gila monster, barefoot gecko, Coast horned lizard, Colorado Desert fringe-toed lizard, Couch's spadefoot, rosy boa, bald eagle, bank swallow, Le Conte's thrasher, loggerhead shrike, long-eared owl, northern harrier, Amargosa vole, big free-tailed bat,	1,843,000	3,000	100	1,000	2,000	6,100	0.3%

Table IV.7-211
Plan-Wide Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 3

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	bighorn sheep, cave myotis, bat, spotted bat, western mastiff bat, Yuma myotis, Algodones Dunes sunflower, Ash Meadows gum plant, Amargosa beardtongue, Amargosa niterwort, Charlotte's phacelia, Cima milk-vetch, Coachella Valley milk-vetch, creamy blazing star, desert pincushion, Emory's crucifixion-thorn, flat-seeded spurge, forked buckwheat, Harwood's eriastrum, Harwood's milkvetch, Inyo County star-tulip, Las Animas colubrina, Mojave Desert plum, Mojave milkweed, nine-awned pappus grass, Orcutt's woody aster, Orocopia sage, Palmer's jackass clover, Parish's club cholla, Pierson's milk-vetch, pink fairy-duster, purple-nerve cymopterus, Red Rock poppy, Red Rock tarplant, Robinson's monardella, Rusby's desert-mallow, sand food, Spanish needle onion, Thorne's buckwheat, Utah beardtongue, white bear poppy, Wiggin's croton, Palmer's jackass clover,							

Table IV.7-211
Plan-Wide Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 3

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	white-margined beardtongue, flat-seeded spurge							
Grassland	Coast horned lizard, American peregrine falcon, bank swallow, Ferruginous hawk, long-eared owl, northern harrier, white-tailed kite, Amargosa vole, American badger, spotted bat, Cushenbury milk-vetch, Cushenbury oxytheca, short-joint beavertail cactus	238,000	6,100	300	0	500	6,900	2.9%
Riparian/ Wetlands	Arroyo toad, California red-legged frog, Coast horned lizard, Couch's spadefoot, Western pond turtle, American peregrine falcon, Arizona Bell's vireo, bald eagle, bank swallow, Crissal thrasher, gilded flicker, elf owl, Inyo California towhee, loggerhead shrike, long-eared owl, Lucy's warbler, northern harrier, redhead, vermillion flycatcher, white-tailed kite, yellow-breasted chat, yellow-headed blackbird, yellow warbler, Amargosa vole, Mojave River vole, Arizona myotis, cave myotis, fringed myotis, hoary bat, long-eared myotispocketed	1,652,000	5,100	200	0	400	5,700	0.3%

Table IV.7-211
Plan-Wide Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 3

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	free-tailed bat, spotted bat, western mastiff bat, western yellow bat, Yuma myotis, Ash Meadows gum plant, Inyo County star-tulip, Parish's alkali grass, Parish's phacelia, Amargosa pupfish, Amargosa speckled dace, Amargosa spring snails							
Agriculture/ Rural Land Cover	American peregrine falcon, Bank swallow, loggerhead shrike, long-eared owl, northern harrier, redhead, yellow-headed blackbird, yellow warbler, Arizona myotis, hoary bat, Tehachapi pocket mouse, western mastiff bat, western yellow bat	825,000	40,000	500	8,400	8,700	57,600	7%

1 Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

2 Solar impacts include ground-mounted distributed generation.

3 Impacts to the dune community, riparian communities, arid west freshwater emergent marsh, and Californian warm temperate marsh/seep would be avoided through implementation of CMAs. Only impacts determined to be unavoidable would occur in these natural communities.

4 This amount assumes the loss of conservation value for all land fragmented by the wellfields.

Notes: The natural community classification system is described in Chapter III.7 and follows CDFG 2012. Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. Totals may not sum due to rounding. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

As additional analysis, Table IV.7-50, in Section IV.7.3.2 provides a cross-reference of natural communities shared between primary Covered and Non-Covered Species. There are a number of species-specific CMA's for Covered Species and natural communities that would be expected to also minimize and avoid impacts to the Non-Covered Species that may co-occur, e.g., the non-covered yellow-breasted chat often occurs within the same riparian habitat as the covered southwestern willow flycatcher, therefore, conservation measures implemented for southwestern willow flycatcher would often benefit the yellow-breasted chat. Although the modeled habitat for the Covered Species does not always directly overlap the range of Non-Covered Species requiring similar habitat, this method provides a general additional guide for determining impacts and accounting for conservation measures.

Impact BR-5: Siting, construction, decommissioning, and operational activities could result in loss of nesting birds (violation of the federal Migratory Bird Treaty Act and California Fish and Game Code Sections 3503, 3503.5, 3511, and 3513).

Siting, construction, decommissioning, and operations of renewable energy and transmission projects would result in the removal of vegetation and other nesting habitat and cause increased human presence and noise that has the potential to cause the loss of nesting birds, which would be a violation of the federal Migratory Bird Treaty Act and the California Fish and Game Code. The potential loss of nesting birds resulting from these activities would be adverse without application of CMAs. Avoidance and minimization CMAs (AM-PW-4, 13, 14; AM-DFA-RIPWET-1, 3, 5; AM-DFA-AG-1 through 6; AM-DFA-ICS CMAs for bird species) include the season restrictions, survey requirements, and setbacks necessary to avoid and minimize the loss of nesting birds.

Impact BR-6: Siting, construction, decommissioning, and operational activities would adversely affect habitat linkages and wildlife movement corridors, the movement of fish, and native wildlife nursery sites.

The following provides an analysis of the impacts of the development of Covered Activities on habitat linkages and wildlife movement in the Plan Area. Species-specific habitat linkages and wildlife movement areas are a component of analysis conducted under Impact BR-4 above. Suitable habitat for each species includes areas of habitat linkages and wildlife movement. Analysis under BR-4 specifically incorporates habitat linkage information for desert tortoise, Mohave ground squirrel, and desert bighorn sheep. In addition to the species-specific analysis of impacts to suitable habitat supporting habitat linkages and wildlife movement for species, landscape level information on habitat linkages (i.e., Desert Linkage Network) and migratory bird movement are analyzed below.

Desert Linkage Network

The desert linkage network is a comprehensive and detailed habitat connectivity analysis for the California deserts identified "swaths" of habitat of uniform physical conditions that will interact with uncertain climate changes to maintain habitat for species and species' movement (Penrod et al. 2012, as cited in Appendix Q). Figures III.7-26 through III.7-36 in Chapter III.7 of Volume III shows the desert linkage network for the Plan Area and in each ecoregion subarea.

Table IV.7-212 shows the impact analysis for the desert linkage network for Alternative 3. Overall, over 21,000 acres of desert linkage network could be adversely impacted in DFAs and transmission corridors in seven different subareas. In the Cadiz Valley and Chocolate Mountains subarea, DFAs are located in the portion of the desert linkage network that connects the Colorado River to the northern part of the McCoy Mountains. There are also DFAs in the linkage network that extends along the McCoy Mountains and connects south to the Palo Verde Mesa. There are also DFAs in linkages in the Chuckwalla Valley that extend west and south. Numerous generally north-south habitat linkages cross the I-10 corridor area between Desert Center and Blythe in this subarea; DFAs under Alternative 3 largely avoid these habitat linkages and the development of Covered Activities in these DFAs would not likely result in adverse impacts to general terrestrial wildlife movement.

In the Imperial Borrego Valley, there are DFAs in the northern portion of the desert linkage network that extends along East Mesa. DFAs are not located in the desert linkage network corridors elsewhere in the Imperial Borrego Valley subarea. General terrestrial wildlife movement may be affected locally by the development of Covered Activities in these DFAs; however, the siting of DFAs, the reserve design, and the CMAs related to wildlife movement and Covered Species would offset the impacts on general terrestrial wildlife movement.

In the Mojave and Silurian Valley, there are DFAs in the Mojave Valley in a linkage that connects the area around Barstow to the Calico Mountains. In the Owens River Valley, there are DFAs in the desert linkage network that connects the Haiwee Reservoir to Indian Wells. In the Panamint Death Valley there is a DFA in the Searles Valley in a linkage that connects the Argus and Searles Ranges. DFAs are not located in the desert linkage network corridors elsewhere in these ecoregion subareas. General terrestrial wildlife movement may be affected locally by the development of Covered Activities in these DFAs; however, the siting of DFAs, the reserve design, and the CMAs related to wildlife movement and Covered Species would offset the impacts on general terrestrial wildlife movement.

In the Pinto Lucerne Valley and Eastern Slopes subarea, there are DFAs in a portion of the desert linkage network that connects the Grapevine Canyon Recreation Lands to the Granite Mountains in Lucerne Valley; however, no DFAs are located in the habitat linkage between the Ord Mountains and the Granite Mountains across the Highway 18 east of Apple Valley.

DFAs under Alternative 3 are sited to avoid and minimize impacts to wildlife movement in this subarea by maintaining movement corridors between the San Bernardino Mountains and the Mojave Desert, including in the Ord Mountains to Granite Mountains linkage area and in the Bighorn Mountain area that connects to Johnson Valley and the Morongo Basin. General terrestrial wildlife movement may be affected locally by the development of Covered Activities in these DFAs; however, the siting of DFAs, the reserve design, and the CMAs related to wildlife movement and Covered Species would offset the impacts on general terrestrial wildlife movement.

In the West Mojave and Eastern Slopes subarea, there are DFAs in the linkage that connects the area around Baldy Mesa along the southern edge of the Plan Area to Helendale; however, in this area, DFAs under Alternative 3 are sited to avoid the habitat linkage along the Mojave River and the habitat linkage east of Saddleback Buttes along the Los Angeles and San Bernardino county line. In the Fremont Valley area around California City, DFAs are located in linkages between Edwards Air Force Base the Tehachapi Mountains that could adversely affect wildlife movement; however, an east-west corridor was maintained without DFAs north of California City across Fremont Valley and several large corridor remain without DFAs through the Antelope Valley. General terrestrial wildlife movement may be affected locally by the development of Covered Activities in these DFAs; however, the siting of DFAs, the reserve design, and the CMAs related to wildlife movement and Covered Species would offset the impacts on general terrestrial wildlife movement.

The DRECP Plan-Wide Reserve Design Envelope for Alternative 3 was developed, in part, to conserve and avoid impacts to habitat linkages and wildlife movement, including the desert linkage network. The conservation analysis for the desert linkage network is provided under the Impacts of the Reserve Design below. To avoid and minimize impacts to the desert linkage network beyond what is estimated in Table IV.7-212, Covered Activities will be sited and designed to maintain the function of wildlife connectivity in the following linkage and connectivity areas: (1) across Interstate 10 centered near Wiley's Well Road to connect the Mule and McCoy mountains, (2) across Interstate 10 to connect the Chuckwalla and Palen mountains, (3) across Interstate 10 to connect the Chuckwalla Mountains to the Chuckwalla Valley east of Desert Center, and (4) the confluence of Milpitas Wash and Colorado River floodplain. In addition, the Riparian and Wetland Natural Communities and Covered Species CMAs will contribute to maintaining and promoting habitat connectivity and wildlife movement.

Table IV.7-212
Plan-Wide Impact Analysis for the Desert Linkage Network – Alternative 3

Desert Linkage Network by Ecoregion Subarea	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Cadiz Valley and Chocolate Mountains	890,000	4,000	100	-	4,000	8,000
Imperial Borrego Valley	156,000	200	-	100	70	400
Kingston and Funeral Mountains	174,000	-	-	-	-	-
Mojave and Silurian Valley	507,000	1,000	-	-	400	2,000
Owens River Valley	19,000	300	-	200	200	700
Panamint Death Valley	206,000	100	-	-	-	100
Pinto Lucerne Valley and Eastern Slopes	291,000	2,000	300	-	2,000	5,000
Piute Valley and Sacramento Mountains	152,000	-	-	-	-	-
Providence and Bullion Mountains	426,000	-	-	-	-	-
West Mojave and Eastern Slopes	860,000	5,000	300	-	600	6,000
Total	**3,682,000**	**13,000**	**700**	**300**	**7,000**	**22,000**

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
[2] Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Migratory Birds

Migration patterns across the Plan Area are discussed in the typical impacts section (Section IV.7.2.1.3) and quantification of operational impacts to avian and bat species are discussed in Impact BR-9. The following analysis focuses on the anticipated distribution of different technology types in relation to known migratory corridors and migratory resources in each subarea.

In Alternative 3, operational impacts from anticipated development in the West Mojave and Eastern Slopes and the Pinto Lucerne Valley and Eastern Slopes ecoregion subareas would consist mostly of solar with some wind development in compatible DFAs. In particular, DFAs designated between Searles Lake and the Tehachapi passes that may affect migratory movement of waterbirds using the lake and associated wetlands. Further, development on solar DFAs designated near Trona may affect migratory birds using Searles Lake. Other key bird migration areas affected by the extensive DFAs would include routes between the Tehachapi and San Bernardino passes, and the other dry lakes and wetland refuges on and to the north of Edwards AFB, including the North Mojave dry lakes of China Lake and Harper Lake. Possible direct loss of important migratory bird habitat in Antelope Valley would lead to loss of habitat for wintering Mountain Plover. DFAs for both wind and solar generation development are expected in the Cadiz and Chocolate Mountain subarea. Wind development would occur in the Cadiz and Chocolate Mountains subarea to the north west of Blythe in the McCoy wash area, and north of the I-10. These areas are adjacent to the Colorado River migratory corridor, and may affect migratory bird movement to and from the Coachella Valley.

Solar development would be anticipated throughout the West Mojave and Eastern slopes, Pinto Lucerne Valley and Eastern Slopes, Cadiz Valley and Chocolate Mountain and Imperial Borrego Valley ecoregion subareas. Alternative 3 would result in a 4.4-fold increase in new solar PV and solar thermal facilities in the West Mojave and Eastern Slopes when compared to baseline. Further, both Pinto Lucerne Valley and Eastern Slopes and Mojave and Silurian ecoregion subareas would be developed, where previously they have not been the focus of development. Impacts are likely to occur in DFAs in HWY 14 corridor perpendicular to the Tehachapi passes and near Koehn dry lake. Other DFAs, in Antelope Valley fall are between the San Bernardino passes and near to the dry lakes on Edwards AFB. Small quantities of solar development are anticipated in the Mojave Silurian Valley and Providence and Bullion Mountains subareas, these developments would be to the west of Barstow, and less likely to impact migratory corridors than other developments. Development around the Salton Sea and in the Imperial Valley would be on the southern, western and eastern shores. As analyzed in BR-4, impacts from solar development are likely to result in a 3.7-fold increase in solar facilities when compared to baseline impacts. Development would lead to direct loss of foraging habitat for wintering and resident birds in the agricultural lands south of the Salton Sea, and would create facilities across the landscape that mimic open water. Such facilities would adversely affect the behavior migratory birds, and would result increased mortality. Areas most important to migratory waterbirds that are within both geothermal and solar DFAs include the agricultural lands west of Calipatria to the Shoreline of the Salton Sea. Transmission throughout this area is already extensively developed to serve existing geothermal facilities and would likely attract further development. These lands provide foraging for Cattle Egret, White-faced Ibis, Sandhill Crane, Mountain Plover, Whimbrel, and Long-billed Curlew throughout

winter (Shuford et al 2000). Further, the proximity of these DFAs to the Salton Sea would affect migrating and resident water birds including ducks, geese, pelicans, cormorants, and wading birds that would otherwise be minimally affected by development. In particular grebes are known to be attracted to both the reflective surfaces of solar PV facilities and the evaporation ponds used by some geothermal and solar facilities.

Development in the Cadiz Valley and Chocolate Mountains ecoregion subarea, would occur along the I-10 corridor to the west side of the Colorado River, in the undisturbed McCoy wash area, and in agricultural lands west of Blythe. Anticipated development would result in a 3.3-fold increase in solar facilities when compared to baseline. This would increase hazards on the migratory linkages for birds between the Colorado River, and the Coachella Valley, and would adversely affect both Covered Species and other migratory birds.

Application of CMAs would require projects to be sited and designed to avoid impacts to occupied and suitable habitat for Covered Species, to the maximum extent feasible. Further, siting and construction CMAs require setbacks from riparian and wetland habitats which would minimize direct loss. Compensation CMAs would offset habitat loss for Covered Species. A bird and bat use and mortality monitoring program would be implemented during operations. Any proposed projects that are likely to impact bird and bat Covered Species during operation would develop and implement a project-specific Bird and Bat Covered Species Operational Actions that meets the approval of the appropriate DRECP Coordination Group. The goal of the project-specific Bird and Bat Covered Species Operational Actions would be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar and geothermal projects. The compensation requirements in the Bird and Bat Covered Species Operational Actions would be based on ongoing/annual fees and the biological basis for the fee would be determined by the mortality effects as annually measured and monitored according to the Bird and Bat Covered Species Operational Actions. In combination, the application of siting, monitoring, operational and compensation CMAs would minimize impacts to migratory birds. Application of CMAs would reduce the overall impacts to migratory bird populations.

Impact BR-7: Siting, construction, decommissioning, and operational activities would result in habitat fragmentation and isolation of populations of listed and sensitive plants and wildlife.

The siting, construction, decommissioning, and operation of renewable energy and transmission projects can have the potential to fragment intact and interconnected landscapes resulting in isolated patches of habitat, isolated species populations, reduced gene flow, and remaining habitat that is more exposed to the edge effects of adjacent developments.

The DRECP integrated planning process, as described in Volume II, avoids and minimizes this impact through the siting of DFAs and through the reserve design. Renewable energy development would be restricted to DFAs under the DRECP; therefore, Alternative 3 would allow the siting of renewable energy development only within approximately 7% of the available lands in Plan Area (1,405,000 acres of DFAs). Of which, siting and construction of renewable energy development would result in ground disturbance to less than 1% of the available lands in the Plan Area (approximately 182,000 acres).

In conjunction with DFA siting, the DRECP integrated planning process identified Reserve Design Lands within which renewable energy development would be prohibited and conservation would occur. As described below under Impacts of the Reserve Design, the DRECP Plan-Wide Reserve Design Envelope for Alternative 3 covers 15,161,000 acres of the Plan Area (80% of the available lands in the Plan Area); therefore, these areas would not be affected by fragmentation or population isolation impacts from Covered Activities.

In order to minimize habitat fragmentation and population isolation, DFAs were sited in less intact and more degraded areas. Based on the terrestrial intactness analysis developed for the DRECP area, approximately 89% of the DFAs in Alternative 3 are characterized by low or moderately low intactness. Therefore, a majority of the DFAs are in locations with existing habitat fragmentation and population isolation such that development of Covered Activities in these areas would not appreciably contribute to additional effects.

Other measures of fragmentation and population isolation effects include the amount of impacts on environmental gradients. Environmental gradients are spatial shifts in physical and ecological parameters across a landscape. Environmental gradients are influenced by factors such as temperature, precipitation, wind, and solar exposure that vary with physical factors such as elevation, latitude, slope, and aspect. The impact analysis addresses four types of environmental gradients in the Plan Area: elevation, landforms, slope, and aspect.

Elevation: Under Alternative 3, 99% of the impacts from Covered Activities would occur in DFAs below 4,000 feet, including 56% of the impacts occurring below 1,000 feet and 36% between 2,000 and 4,000 feet. As the majority of impacts occur in DFAs below 4,000 feet, impacts will be greater to natural communities that occur below this elevation such as desert scrub natural communities as compared to natural communities that occur at higher elevations. Approximately 94% of geothermal impacts are at elevations below 1,000 feet, including 63% below sea level. Solar impacts also tend to be concentrated in the lower elevations, with 51% of impacts below 1,000 feet. Wind impacts tend to be at higher elevations, with 80% of impacts at elevations above 2,000 feet. Approximately 27% of transmission impacts would be between 2,000 and 4,000 feet elevation. Habitat fragmentation, population isolation and gene flow impacts would be concentrated at lower elevations, which has the potential to reduce the potential for successful species range

shifts, contractions, and expansions for lower elevation Covered Species and natural communities in response to climate change. As Alternative 3 would impact less than 1% of all available land within the Plan Area, any impacts to successful species range shifts, contractions, and expansions will be relatively minor.

Landforms: Landforms in the Plan Area include canyons/deeply incised streams, mountain tops/high ridges, open slopes, and plains. Under Alternative 3, the vast majority (97%) of impacts within DFAs would occur to plains, with these impacts spread across the different impact types, including 74% from solar, 3% from wind, 10% from geothermal, and 14% from transmission.

Habitat fragmentation, population isolation and gene flow impacts would be concentrated in plains, which has the potential to reduce the potential for successful species range shifts, contractions, and expansions for Covered Species and natural communities associated with plains in response to climate change. As Alternative 3 would impact less than 1% of all available land within the Plan Area, any impacts to successful species range shifts, contractions, and expansions will be relatively minor.

Slope: Under Alternative 3, total impacts within DFAs would be progressively less with increasing slope. The large majority (93%) of impacts would occur on slopes less than 5%, and 99% of impacts would occur on slopes up to 20%. On slopes less than 20%, impacts would be spread across the different impacts types, including 73% from solar, 3% from wind, 10% from geothermal, and 15% from transmission. Habitat fragmentation, population isolation, and gene flow impacts would be concentrated on slopes less than 20%, which has the potential to reduce the potential for successful species range shifts, contractions, and expansions for Covered Species and natural communities that inhabit lower slopes in response to climate change. As Alternative 3 will impact less than 1% of all available land within the Plan Area, any impacts to successful species range shifts, contractions, and expansions will be relatively minor.

Aspect: Under Alternative 3, impacts within DFAs would generally be well distributed among the different aspects Impacts from solar, geothermal, wind, and transmission would have similar distributions across the different aspects compared to overall impacts. By distributing the impacts across all aspects, there is a less potential to interrupt species movement and gene flow for species that occur within any one aspect.

Siting, construction, decommissioning, and operation of the renewable energy and transmission projects has the potential to result in adverse fragmentation and population isolation effects, but these effects are avoided and minimized through the DFAs and reserve design envelope, as well as through the implementation of avoidance and minimization CMAs (AM-LL-1 through AM-LL-4).

Impact BR-8: Construction of generation facilities or transmission lines would result in increased predation of listed and sensitive wildlife species.

Higher predator densities and hence high predation rates are a documented effect of increased human development in the Plan Area. The extent to which Covered Activities contribute to increasing predation through phenomena like predator subsidization is linked to the likely extent of Covered Activities in undisturbed parts of desert.

Agricultural landscapes in the west Mojave, Lucerne Valley and Imperial Borrego Valley or surrounding Blythe are already disturbed, with relatively high levels of human activity that supplement predators such as ravens and coyotes, and support covered predator species such as burrowing owls and Swainson's hawk. Therefore, covered operational activities in already disturbed rural and agricultural landscapes are would result in a little increase in predation.

However, Covered Activities in undisturbed desert habitat are likely to disproportionately supplement predators, increase predator density and consequently increase predation rates on Covered Species. Alternative 3 would result 116,000 acres of permanent conversion of natural desert communities with 61,000 acres of impacts (34% of the total ground disturbance) within areas characterized by disturbed land cover types.

Wind and solar development in the West Mojave and Eastern Slopes and the Pinto Lucerne Valley and Eastern Slopes ecoregion subareas may supplement predators in undisturbed environments including parts of the Tehachapi Mountains or areas to the north of Edwards AFB. In these areas, susceptible species would include nestlings and eggs of Covered Species like tricolored blackbird, and golden eagle, as well as small reptiles like the Tehachapi slender salamander, Mojave fringe-toed lizard, and desert tortoise. Any development to the North of Edwards is likely to affect Mohave ground squirrel. Much of the development in the Cadiz and Chocolate Mountains subarea, would be expected in the BLM Solar SEZ area adjacent to the I-10 corridor. This area may already experience increased predator densities as a consequence of human development, the additional impact of further development would therefore be attenuated. However, development in more remote parts to the subarea would likely increase predation. Susceptible species include desert tortoise and Mojave fringe toed lizard. Impacts in Imperial Valley would predominately occur in agricultural and disturbed lands. However, where projects are sited in natural communities, susceptible Covered Species would include flat-tailed horned lizard, and nesting birds.

Application of a Common Raven management plan (AM-PW-6), approved by the appropriate DRECP Coordination Group would reduce project activities that increase predator subsidization. Including, removal of trash and organic waste; minimize introduction of new water sources including pooling of water from dust control; removal of

carcasses from bird and bat collisions; and reduction in new nesting and perching sites where feasible.

The level of impact on Non-Covered Species would be similar to that discussed for the Covered Species.

Impact BR-9: Operational activities would result in avian and bat injury and mortality from collisions, thermal flux or electrocution at generation and transmission facilities.

The impacts of operation activities on avian and bat injury and mortality are analyzed below for wind turbines, solar, and transmission.

Wind Turbine

This section summarizes the range of impacts to bird and bat species within the Plan Area that occur as a consequence of wind turbine operation. The range of collision rates calculated in Table IV.7-213 are indicative of the overall annual collision rates for all bird and bat species, not just Covered Species. The range of collision rates is estimated for the final full build-out of wind over the life of the Plan, and is based on the range of collision rates in existing published and gray literature. While it is possible to provide a range of possible collision rates, it is not feasible to estimate the collision rate for each Covered Species, but only infer the propensity for a species to be at risk from collision by the overlap between the species habitat models and the likely distribution of wind generation across the subareas.

Overall, Alternative 3 would result in a median of approximately 5,000 collisions per year for birds and approximately 23,000 collisions per year for bats across the Plan area. In Alternative 3, 51% of impacts would be in West Mojave and Eastern Slopes, with 33% of impacts in Pinto Lucerne Valley. Of the remaining 16%, 14% would occur in the Cadiz Valley and Chocolate Mountains subarea, with 2% of development in the Borrego Imperial Valley. Collisions would predominately affect species in the northwest of the Plan, including Bendire's thrasher, burrowing owl, golden eagle, least Bell's vireo, and Swainson's hawk, tricolored blackbird southwest willow flycatcher, and mountain plover. Collision rates would be lower in the Cadiz and Chocolate Mountains subarea. Susceptible species in this subarea include burrowing owl, greater sandhill crane and mountain plover.

Pre-construction CMAs require habitat assessments and pre-construction surveys for covered riparian and wetland birds, burrowing owl, greater sandhill crane, Swainson's hawk, Bendire's thrasher, and golden eagle. All bat Covered bats species would be susceptible including the California leaf-nosed bat, pallid bat, and Townsend's big-eared bat.

Application of siting CMAs would avoid or minimize the risk to species localities. Setbacks from active nests would be required for Bendire's thrasher, California condor, Gila woodpecker, and golden eagle. In addition, projects would be sited and designed to avoid impacts to occupied and suitable habitat for Covered Species to the maximum extent feasible. Implementation of bat specific CMAs include 0.5-mile setbacks from all bat maternity roosts and 5% disturbance caps on desert scrub and woodland habitats in the vicinity of occupied Pallid bat and Townsend's big eared bats roosts would reduce impacts to bat Covered Species.

Applicants would develop and implement a project-specific Bird and Bat Covered Species Operational Actions AM-LL-4) that meets the approval of the appropriate DRECP Coordination Group. The goal of the project-specific Bird and Bat Covered Species Operational Actions will be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar, geothermal, or transmission project. A bird and bat use and mortality monitoring program will be implemented during operations using current protocols and best procedures available at time of monitoring. Further, the compensation requirements in the Bird and Bat Covered Species Operational Actions would be based on ongoing/annual fees and the biological basis for the fee will be determined by the mortality effects as annually measured and monitored according to the Bird and Bat Covered Species Operational Actions.

Similarly, a Condor Operations Strategy (COS) would be developed on a project-specific basis with the goal of avoiding mortality from operations of wind, solar and geothermal projects. No take for condors will be will be permitted in the form of kill from project operations. Any actions taken to encourage condors to leave an area that might result in harassment, injury, or mortality to the bird will be conducted by a Designated Biologist.

Table IV.7-213
Plan-Wide Estimated Range of Collisions per Year for Birds and Bats by Subarea – Alternative 3

Ecoregion Subarea	# Turbines	Birds (Collisions/Yr)[1]			Bats (Collisions/Yr)[1]		
		Low	*Median*	*High*	*Low*	*Median*	*High*
Cadiz Valley and Chocolate Mountains	136	200	700	3,000	300	3,000	19,000
Imperial Borrego Valley	17	-	100	300	-	400	2,000
Kingston and Funeral Mountains	0	-	-	-	-	-	-
Mojave and Silurian Valley	0	-	-	-	-	-	-
Owens River Valley	0	-	-	-	-	-	-
Panamint Death Valley	0	-	-	-	-	-	-

Table IV.7-213
Plan-Wide Estimated Range of Collisions per Year for Birds and Bats by Subarea – Alternative 3

Ecoregion Subarea	# Turbines	Birds (Collisions/Yr)[1]			Bats (Collisions/Yr)[1]		
		Low	*Median*	*High*	*Low*	*Median*	*High*
Pinto Lucerne Valley and Eastern Slopes	325	500	2,000	6,000	600	8,000	46,000
Piute Valley and Sacramento Mountains	0	-	-	-	-	-	-
Providence and Bullion Mountains	0	-	-	-	-	-	-
West Mojave and Eastern Slopes	499	700	3,000	10,000	1,000	12,000	70,000
Grand Total	**977**	**1,000**	**5,000**	**19,000**	**2,000**	**23,000**	**137,000**

[1] Method for estimation of annual bird and bat collision rates described in Section IV.7.1.1.2 and discussed in more detail in Section IV.7.2.1.3

Note: The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table

Solar

Collision with power towers, heliostats and solar arrays, and injury or mortality from exposure to concentrated solar flux, are all known impacts of solar generation facilities. While the nature of the impacts remain the same for all alternatives, the distribution of impacts across the plan area varies in relation to the anticipated quantity and location of solar facilities in each alternative. Under Alternative 3 a total of 1,405,000 acres of the Plan Area would designated as DFAs, of which up to 129,000 acres would be directly impacted by solar development.

In Alternative 3, plan-wide solar development would result in a 4.5-fold increase in collision risks relative to baseline (Appendix O). 16% of the anticipated solar facilities would be in the Cadiz Valley and Chocolate Mountains ecoregion subarea, and 35% would be in the Imperial Borrego Valley subarea. The West Mojave and Eastern Slopes subarea would support approximately 31% of the solar development, with a further 12% occurring in the Pinto and Lucerne Valley subarea. The remaining 8% would be spread across the rest of the Plan area.

Solar development in Imperial Borrego Valley area would convert agricultural lands, which would affect important winter foraging areas for mountain plover and greater sandhill crane. Alternative 3 has some of the most restricted DFAs in the Imperial Borrego Valley

ecoregion subarea, these restrictions would increase the density of development in the remaining DFAs. In particular, the DFAs in the agricultural lands running from the west of Calipatria to the Shoreline of the Salton Sea represent great potential for development because there is already extensive transmission throughout this area to serve existing geothermal facilities. However, this area also provides foraging for Cattle Egret, White-faced Ibis, Sandhill Crane, Mountain Plover, Whimbrel, Long-billed Curlew throughout winter (Shuford et al 2000). Further, the proximity of the Salton Sea would mean that development could disproportionately affect migrating and resident water birds including ducks, geese, pelicans, cormorants, and wading birds that would otherwise be less affected if development was more spread out.

Impacts in Imperial Borrego Valley and the Cadiz Valley would disproportionately affect wetland species like the Yuma clapper rail and California black rail. Due to the close proximity of DFAs to the Colorado River, impacts from solar operations in the Cadiz and Chocolate mountains subarea are also likely to affect riparian birds species associated with the lower Colorado river like southwest willow flycatcher, western yellow billed cuckoo, Gila woodpecker, and least Bell's vireo and would also affect migratory birds as discussed in BR-6.

Impacts in the western Mojave, along the HWY14 corridor, in Antelope Valley and east of Lancaster may disproportionately affect nesting and foraging Swainson's hawk, burrowing owl and overwintering mountain plover. Whereas, impacts in the Lucerne Valley would affect foraging habitat for nesting golden eagle populations, and Bendire's thrasher. Burrowing owl are less regionally specific, and would be affected in subareas with significant quantities of open agriculture lands. They would especially be affected by development in Imperial Borrego Valley, which contains the largest population of burrowing owls in California, and in the West Mojave and Eastern Slopes subarea, in the open agricultural lands around Lancaster and Palmdale.

To offset potential impacts, the application of CMAs would require projects to be sited and designed to avoid impacts to occupied and suitable habitat for Covered Species, to the maximum extent feasible. Further, siting and construction CMAs require setbacks from riparian and wetland habitats, which would minimize direct loss of important migratory bird habitat. Compensation CMAs would offset habitat loss for Covered Species. A bird and bat use and mortality monitoring program would be implemented during operations. Any proposed projects that are likely to impact bird and bat Covered Species during operation would develop and implement project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meet the approval of the appropriate DRECP Coordination Group. The goal of the project-specific Bird and Bat Covered Species Operational Actions would be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar and geothermal projects. The compensation requirements of AM-LL-4 would be

based on ongoing/annual fees and the biological basis for the fee would be determined by the mortality effects as annually measured and monitored according to AM-LL-4. In combination, the application of siting, monitoring, operational and compensation CMAs would minimize impacts to migratory birds. Bat mortality from solar facilities may occur because of collision or solar flux injury. No DFAs are known to be specifically sensitive areas for bat foraging, and implementation of bat specific CMAs include 500 feet setbacks from all bat maternity roosts and 5% disturbance caps on desert scrub and woodland habitats in the vicinity of occupied pallid bat and Townsend's big-eared bat roosts would reduce impacts to bat Covered Species.

Transmission

The transmission collision and electrocution impacts would occur from generation tie lines (collector lines), new substations, and major transmission lines (delivery lines) that deliver power to major load centers. The distribution of impacts from collector lines would mostly occur within DFAs and be similar in distribution to the generation facilities. Most of the affected areas would be in Imperial Borrego Valley, Cadiz Valley and Chocolate Mountains, Pinto Lucerne Valley, Mojave and Silurian Valley, and the West Mojave and Eastern Slopes subareas, with 714,000 acres, 8,000 acres, 5,000 acres, and 2,000 acres of terrestrial impacts anticipated respectively. The remaining 3,000 acres of terrestrial impacts would be spread throughout the remaining subareas.

Both large transmission lines and the network of smaller collector lines would present collision and electrocution hazard to bird Covered Species. In particular, lines running perpendicular to migratory corridors or close to bird refuges would represent a greater hazard. Such lines would include those anticipated to run parallel to the Tehachapi Mountains, as well as those that would cross the Tehachapi mountain passes. Other anticipated lines in the Chuckwalla Valley would run parallel to I-10 corridor in the existing transmission corridors. In the Imperial Borrego Valley subarea, lines would run along the along the eastern side of Salton Sea in existing transmission corridors that run parallel to the foothills of the Chocolate Mountains; and would also run from east to west between the Imperial Valley and the San Diego area. All these lines would represent additional risk to migrating and overwintering covered avian species, due to their location, especially in bad weather when flocks of migratory birds may be forced down.

All bird Covered Species may be impacted by additional transmission infrastructure. To ameliorate potential hazards, transmission projects would reduce impacts to Covered Species by implementing Plan-wide, landscape-level, natural community, and Covered Species CMAs where feasible, as discussed under the wind impacts section.

Applicants would develop and implement a project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meets the approval of the appropriate DRECP

Coordination Group. The Bird and Bat Covered Species Operational Actions aims to avoid and minimize direct mortality of birds and bats from the operation of the specific transmission project.

A bird mortality monitoring program will be implemented during operations using current protocols and best procedures available at time of monitoring. Bird and Bat Covered Species Operational Actions would include compensatory mitigation to offset the inadvertent mortality to covered avian species. Such compensation would be in accordance with AM-LL-4 and may include ongoing/annual fees. The biological basis for the fee will be determined by the mortality effects as annually measured and monitored according to AM-LL-4.

In addition, transmission projects would implement transmission specific CMAs that would: where feasible, bury electrical collector lines along roads (AM-TRANS-1); fit flight diverters on all transmission projects spanning or within 1,000 feet of water bodies and watercourses (AM-TRANS-2); avoid siting transmission projects that span canyons or are located on ridgelines (AM-TRANS-3); restrict transmission projects to within designated utility corridors (AM-TRANS-4). With the implementation of CMAs impacts to Covered Species would minimized.

The level of impact on Non-Covered Species would be similar to that discussed for the Covered Species.

Operational Impacts Take Estimates for Covered Avian and Bat Species

The following section summaries the initial estimates for take of Covered Species by operational activities that would require compensatory mitigation. Take estimates integrate all sources of mortality for each technology discussed above. Section IV.7.1.1.2 provides the method used to estimate the operational take for Covered avian and bat species provided here. Based on the location of DFAs and MW distribution, it is expected that take of Covered Species associated with Agricultural habitats would be particularly affected, which would include Covered Species such as burrowing owl, Swainson's hawk, greater sandhill crane and mountain plover.

Table IV.7-214
Plan-Wide Estimated Total Take for Covered Avian and Bat Species – Alternative 3

Covered Bird and Bat Species	Solar Impact	Wind Impact	Geothermal Impact	Total Impact
Bendire's thrasher	50	20	0	70
Burrowing owl	180	10	20	210
California condor[1]	0	0	0	0
California black rail	40	0	10	50

Table IV.7-214
Plan-Wide Estimated Total Take for Covered Avian and Bat Species – Alternative 3

Covered Bird and Bat Species	Solar Impact	Wind Impact	Geothermal Impact	Total Impact
Gila woodpecker	40	0	0	50
Golden eagle[2]	n/a	n/a	n/a	n/a
Least Bell's vireo	90	0	0	100
Mountain plover	100	20	20	130
Greater sandhill crane	20	0	10	20
SW willow flycatcher	70	0	0	70
Swainson's hawk	50	10	0	60
Tri-colored blackbird	80	30	0	110
Western yellow billed cuckoo	40	0	0	50
Yuma clapper rail	40	0	10	50
Grand Total Avian Species	**800**	**90**	**70**	**950**
California leaf-nosed bat	20	10	0	40
Pallid bat	20	50	0	70
Townsends big-eared bat	60	10	10	80
Grand Total Bat Species	**100**	**70**	**10**	**190**

[1] Take for California condor would not be permitted under the DRECP.

[2] Take of Golden Eagle would be permitted on a project by project basis. Based on the 2013 analysis, no more than 15 golden eagles per year would be authorized for 2014 for any new activity within the Plan Area. Take limits for the DRECP area will be re-evaluated annually based on the amount of ongoing take and population estimates of eagles within the local-area population of eagles.

Note: The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table

Impact Reduction Strategies and Mitigation

The implementation of the Plan would result in conservation of some desert lands as well as the development of renewable energy generation and transmission facilities on other lands. There are several ways in which the impacts of the renewable energy development covered by the Plan would be lessened. First, the Plan incorporates specific biological reserve design components and LUPA components for each alternative. Additionally, Covered Activities under the Plan would be required to implement CMAs to avoid and minimize impacts inside and outside the DFAs and CMAs to compensate for the impacts of Covered Activities. Additionally, the implementation of existing laws, orders, regulations and standards would reduce the impacts of project development. If significant impacts would still result after implementation of CMAs and compliance with applicable laws and regulations, then specific mitigation measures are recommended in this section.

Conservation and Management Actions

The conservation strategy for Alternative 3 (presented in Volume II) defines specific actions that would reduce the impacts of this alternative. The impact assessment above references applicable avoidance, minimization, and compensation CMAs that would reduce and compensate for the impacts of Covered Activities.

For all Covered Activities throughout the Plan Area, the avoidance and minimization Plan-wide CMAs AM-PW-1 through AM-PW-17 would be required to reduce potential adverse effects through the implementation of Plan-wide standard practices. Resource-specific CMAs would be required for Covered Activities impacting specific resources, including the CMAs under AM-DFA-RIPWET, AM-DFA-DUNE, AM-DFA-ONC, AM-DFA-AG, AM-DFA-BAT, AM-DFA-PLANT, AM-DFA-ICS, and AM-DFA-BLMSS. Additionally, all impacts resulting from Covered Activities in the Plan Area would be required to compensate impacts to biological resources (COMP-1 through COMP-5).

Laws and Regulations

Similar to the No Action Alternative, existing laws and regulations will reduce certain impacts of Covered Activity implementation. Relevant regulations are presented in the Regulatory Setting in Volume III. The requirements of relevant laws and regulations are summarized above for the No Action Alternative in Section IV.7.3.1.1.1.

Mitigation Measures

After implementation of the CMAs and existing laws and regulations, mitigation measures will be applied to further reduce some of the adverse impacts on biological resources. The biological conservation strategy is an essential part of the project description for the DRECP. Implementation of the DRECP, including the CMAs, would avoid, minimize, and compensate for the impacts of the Covered Activities such that additional mitigation measures are not necessary for all but the following resource impacts.

Mitigation Measure for Impact BR-1: Siting and construction of renewable energy and transmission development would result in impacts to rare natural communities. If habitat assessments identify rare natural communities on or within 0.25 miles of a project site, the DRECP shall require the following measure be implemented.

> **BR-1a:** Prepare a Rare Natural Community Avoidance and Mitigation Plan that specifically addresses how rare natural communities would be avoided or mitigated for any ground disturbance impacts sited within 0.25 mile of mapped rare natural communities. The Plan shall be prepared as part of the project-specific environmental review.

For avoidance of rare natural communities, the Plan shall demonstrate that the project facilities have been sited or that the project has implemented appropriate site-specific design features to ensure that the effects of the proposed project would not directly impact or contribute to indirect effects on the rare natural communities on or adjacent to the project site. Avoidance of potential indirect effects on rare natural communities relate to dust, fire management, invasive plants, and degradation of ecological processes (i.e., hydrological processes and soil processes).

For impacts to rare natural communities, the Plan shall demonstrate that the compensation used to offset the impacts of the proposed project through CMAs COMP-1 and COMP-2 also offsets the loss of rare natural community alliances through in-kind acquisition or non-acquisition actions that benefit the rare natural community alliance(s) impacted.

IV.7.3.5.1.2 Impacts from Reserve Design

The impacts of the reserve design collectively refers to the designation and management of existing conservation areas (i.e., LLPAs and MEMLs), BLM LUPA conservation designations, and reserves established within Conservation Planning Areas. These are considered beneficial impacts for biological resources, and this section serves as a biological resources conservation analysis for this alternative. This section is organized by biological resource at the landscape level, natural community level, and species level.

Overall of the 15,161,000 acres within the Alternative 3 Reserve Design Lands, 41% is within BLM LUPA conservation designations, 8% in the Conservation Planning Areas, and the remaining 51% are located in existing conservation areas. The SAA from the Preferred Alternative located in the Silurian Valley would be conserved in NLCS under Alternative 3. The SAA from the Preferred Alternative located north of Kramer Junction in the West Mojave would be conserved in ACEC and Conservation Planning Areas under Alternative 3. Within the Reserve Design Lands, the interagency Plan-wide Conservation Priority Area covers approximately 1,878,000 acres, including 1,688,000 acres of BLM LUPA conservation designations and 190,000 acres of Conservation Planning Areas.

The DRECP Plan-Wide Reserve Design Envelope for Alternative 3 was developed from the reserve design envelope developed through the reserve design process described in Section I.3.4.4 and Appendix D; however, the extent of the DRECP Plan-Wide Reserve Design Envelope for Alternative 3 differs from the extent of the envelope described in Volume I because it was integrated with the other elements of the alternative.

Overall, the DRECP Plan-Wide Reserve Design Envelope for Alternative 3 would include 95% of the conceptual reserve design envelope described in Volume I. The DRECP Plan-Wide Reserve Design Envelope for Alternative 3 would also include high percentages of the total

reserve design envelope in all of the subareas, ranging from 84% in the Owens River Valley subarea to 98% in the Kingston and Funeral Mountains and Panamint Death Valley subareas.

Areas not included in the DRECP Plan-Wide Reserve Design Envelope for Alternative 3 that are in the conceptual reserve design envelope described in Volume I include:

- Portions of Study Area Lands: The Future Assessment Areas occupy approximately 10,000 acres that were identified in the reserve design envelope that are not designated as Reserve Design Lands under Alternative 3, including the following geographic areas:
  - The Lucerne Valley area along Highway 247
- Portions of the DFAs: Areas in DFAs under Alternative 3 occupy approximately 262,000 acres that were identified in the conceptual reserve envelope that are not be designated as Reserve Design Lands, including the following geographic areas:
  - Palen and Chuckwalla Valley along Interstate 10 in east Riverside County
  - Western and eastern areas of Imperial Valley
  - East and west of Barstow
  - Searles Lake area
  - Coso Range area
- Undesignated Areas: Approximately 537,000 acres were not designated as Reserve Design Lands under Alternative 3 that were identified in the reserve envelope, which is primarily comprised of BLM-administered lands in the Plan Area without BLM LUPA conservation designations over them.

Landscape

Habitat Linkages

Figures III.7-26 through III.7-36 in Chapter III.7 of Volume III shows the desert linkage network for the Plan Area and in each ecoregion subarea. Table IV.7-215 shows the Plan-wide conservation of the desert linkage network under Alternative 3. Conservation of the desert linkage network totals more than 2.6 million acres (72%).

The linkage in the northern portion of the Cadiz Valley and Chocolate Mountains subarea that extends from the Ward Valley to the Vidal Valley and south to the Big Maria Mountains and the Palen Mountains is almost entirely conserved. The three smaller connections in the Palen Valley are all entirely conserved. Though the majority of the remaining linkages are conserved, there are some DFAs that that may interrupt them (see Section IV.7.3.5.1.1). In the Imperial Borrego Valley, the connection that extends into the Cadiz Valley and

Chocolate Mountains subarea to the east is entirely within conserved areas in this subarea. The remaining linkage along East Mesa is partly conserved. The western most linkages in the Kingston and Funeral Mountains subarea are almost entirely conserved, but the linkage network from Clark Mountain to Ivanpah Lake and into the Ivanpah Mountains is only partly conserved. None of the linkages in the Mojave and Silurian Valley subarea are entirely conserved since the middle portion of the subarea is not in Reserve Design Lands. A section of the single linkage in the Owens River Valley subarea is not conserved. The connectivity of the northernmost linkage in the Panamint Death Valley subarea is preserved only through the Searles Range. The connection in the China Lake Naval Weapon Center is not conserved in Reserve Design Lands, but most of the remainder of this linkage to the west is conserved. The majority of the linkage in the eastern portion of the subarea is within Reserve Design Lands. In the Pinto Lucerne Valley and Eastern Slopes subarea, none of the linkages are completely conserved, but the southern portion of all of them are except for the linkage that extends into the West Mojave and Eastern Slopes subarea, which is entirely conserved within the Pinto Lucerne Valley and Eastern Slopes subarea. Only the linkages along the eastern boundary of the Piute Valley and Sacramento Mountains subarea would not be in Reserve Design Lands. All of the linkages in the Providence and Bullion Mountains subarea would be largely maintained in Reserve Design Lands. In the West Mojave and Eastern Slopes subarea the connection between the southern boundary of the Plan Area directly north to the Los Angeles/Kern County line is mostly conserved. Although large portions of the other linkages in this subarea are conserved, none of them are wholly conserved in Reserve Design Lands.

In addition to conservation of the desert linkage network, CMAs provide for the avoidance and minimization of certain linkages in the DFAs (see Section IV.7.3.5.1.1).

Table IV.7-215
Plan-Wide Conservation Analysis for the Desert Linkage Network – Alternative 3

Desert Linkage Network by Ecoregion Subarea	Available Lands (acres)	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Cadiz Valley and Chocolate Mountains	890,000	187,000	505,000	7,000	699,000	78%
Imperial Borrego Valley	156,000	14,000	107,000	200	121,000	78%
Kingston and Funeral Mountains	174,000	28,000	113,000	1,000	142,000	82%
Mojave and Silurian Valley	507,000	179,000	203,000	6,000	388,000	76%

Table IV.7-215
Plan-Wide Conservation Analysis for the Desert Linkage Network – Alternative 3

Desert Linkage Network by Ecoregion Subarea	Available Lands (acres)	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Owens River Valley	19,000	40	12,000	70	12,000	63%
Panamint Death Valley	206,000	109,000	75,000	500	185,000	90%
Pinto Lucerne Valley and Eastern Slopes	291,000	16,000	134,000	3,000	153,000	52%
Piute Valley and Sacramento Mountains	152,000	14,000	94,000	2,000	110,000	72%
Providence and Bullion Mountains	426,000	144,000	219,000	3,000	365,000	86%
West Mojave and Eastern Slopes	860,000	45,000	376,000	50,000	471,000	55%
Grand Total	**3,682,000**	**736,000**	**1,836,000**	**73,000**	**2,645,000**	**72%**

1 Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs).

2 Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), which includes BLM and non-BLM inholdings within the designation.

3 Conservation Planning Areas include areas of the reserve design from which reserve areas would be assembled on private and other public land.

Notes: Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1.2.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Hydrological Resources

A conservation analysis for hydrological resources is provided below, including playa, seep/spring, and the four major rivers in the Plan Area (i.e., Amargosa, Colorado, Mojave and Owens) for Alternative 3. Conservation of riparian areas and wetlands, which co-occur with many of these hydrological resources, is provided below under Natural Communities.

Playa

Playa totals 322,000 acres in the Plan Area. Overall, 60% (192,000 acres) would be conserved under Alternative 3. Existing Conservation would account for 49% of the conservation, BLM LUPA would account for 50%, and Conservation Planning Areas would

account for 1%. Additionally, playas and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks. CMAs for playas would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided riparian or wetland natural communities.

Seep/Spring

There are 479 seep/spring locations in the Plan Area. Overall, 64% (306 locations) of the seep/spring locations would be conserved under Alternative 3. The conservation of seep/spring under Alternative 3 would be relatively high in most subareas. These include Cadiz Valley and Chocolate Mountains (100%, 5 locations), Imperial Borrego Valley (48%, 10 locations), Kingston and Funeral Mountains (70%, 58 locations), Mojave and Silurian Valley (71%, 19 locations), Owens River Valley (74%, 29 locations), Panamint Death Valley (93%, 39 locations), Pinto Lucerne Valley and Eastern Slopes (62%, 51 locations), Piute Valley and Sacramento Mountains (80%, 15 locations), and Providence and Bullion Mountains (86%, 57 locations). The conservation in the other sub areas would be less than half. These locations are Imperial Borrego Valley (44%, 10 locations), Owens River Valley (93%, 39 locations) and West Mojave and Eastern Slopes (44%, 42 locations)

Overall, Existing Conservation would account for 62% of the conservation of seep/spring, BLM LUPA conservation designations would account for 35%, and Conservation Planning Areas would account for 3%. Additionally, seeps and springs and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks. However, it is likely that most, if not all, that all seep/spring locations and associated Covered Species and hydrological functions would be conserved through adherence to site-specific CMAs. CMAs for seep/spring locations would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided wetland natural communities.

Major Rivers

Overall, 72% of the major rivers would be conserved under Alternative 3, including 87% of the Amargosa River, 42% of the Colorado River, 71% of the Mojave River, and 70% of the Owens River. Conservation Planning Areas would account for 34% of the conservation of the major rivers, Existing Conservation would account for 45%, and BLM LUPA conservation designations would account for 22%. Additionally, major rivers and associated Covered Species, natural communities, and hydrological functions would be

avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks.

Dune and Sand Resources

Overall, 76% (1,133,000 acres) of dunes and sand resources would be conserved under Alternative 3. At least 50% of dunes and sand resources would be conserved in 8 subareas in the Plan Area that contain substantial acreage of dunes and sand resources, including Cadiz Valley and Chocolate Mountains at 84% (503,000 acres), Imperial Borrego Valley at 63% (83,000 acres), Kingston and Funeral Mountains at 66% (46,000 acres), Mojave and Silurian Valley at 81% (163,000 acres), Owens River Valley at 58% (5,000 acres), Panamint and Death Valley at 84% (118,000 acres), Pinto Lucerne Valley and Eastern Slopes at 64% (41,000 acres), and Providence and Bullion Mountains at 66% (163,000 acres). A subarea with lower conservation of dunes and sand resources under Alternative 3 is West Mojave and Eastern Slopes at 34% (12,000 acres). Importantly, dunes and sand resources and associated Covered Species, natural communities and ecological functions would be fully avoided through application of the dune avoidance and minimization CMAs.

Environmental Gradients

The conservation analysis addresses four types of environmental gradients in the Plan Area: elevation, landforms, slope, and aspect.

Elevations are characterized by 1,000-foot interval classes ranging from below sea level to 9,000 feet. Approximately 92% of the Plan Area is between sea level and 5,000 feet, 6% is below sea level, and 2% is above 5,000 feet. Under Alternative 3, the majority of available lands would be conserved at all elevation classes above sea level, ranging from 65% for the 2,000 to 3,000 feet class to 59% of the 7,000 to 8,000 feet class. The average conservation of elevation classes above sea level would be 69%. The majority of Plan Area lands for each elevation class above sea level will be conserved under Alternative 3 optimizing the potential for successful species range shifts, contractions, and expansions, which may occur in response to climate change. In addition, the conservation of such a high proportion of Plan Area lands across all elevation classes allows for the conservation of the greatest range and diversity of natural communities and Covered Species habitats. Conserving the majority of each elevation class within the Plan Area will also promote ecological processes and help sustain natural communities and Covered Species.

Landforms in the Plan Area include canyons/deeply incised streams, mountain tops/high ridges, open slopes, and plains. Plains are the dominant landform in the Plan Area totaling 13,906,386 acres, or 73% of the Plan Area. Conservation of the plains landform under Alternative 3 would include 69% of plains. As the majority of Covered Species in the Plan Area are associated with plains during part or all of its life cycle, the conservation of the

majority of this landform is of benefit to a large number of Covered Species including those Covered Species that spend its entire life cycle within this type of landform, and those Covered Species that utilize it during parts of its life cycle such as for breeding, migration, or wintering. Open slopes make up about 16% of the Plan Area and canyons/deeply incised streams and mountain tops/high ridges each make up about 5% to 6% of the Plan Area.

Conservation of the remaining landforms under Alternative 3 would include 87% of canyons/deeply incised streams, 87% of mountain tops/high ridges, and 85% of open slopes. As the majority of Plan Area lands for all landforms will be conserved under Alternative 3, it optimizes the potential for successful species range shifts, contractions, and expansions, which may occur in response to climate change. In addition, the conservation of such a high proportion of Plan Area lands across all landforms allows for the conservation of the greatest range and diversity of natural communities and Covered Species habitats. Conserving the majority of each landform within the Plan Area will also promote ecological processes and help sustain natural communities and Covered Species.

Slopes in the Plan Area are characterized by 5% interval classes. Sixty-one percent of the Plan Area lands are on slopes up to 5%, and 87% of the Plan Area lands are on slopes less than 20%. Conservation of the slope classes under Alternative 3 would range from 66% of slopes up to 5% to 93% of slopes over 100%, with 85% of slopes less than 20% conserved under Alternative 3. The vast majority of Plan Area lands within each slope class will be conserved under Alternative 3 optimizing the potential for successful species range shifts, contractions, and expansions, which may occur in response to climate change. In addition, the conservation of such a high proportion of Plan Area lands across all slope classes allows for the conservation of the greatest range of natural communities and Covered Species habitats. Conserving the majority of each slope class within the Plan Area will also promote ecological processes and help sustain natural communities and Covered Species.

Aspects in the Plan Area include nine classes: north, northeast, east, southeast, south, southwest, west, northwest, and flat. Except for flat, the remaining eight aspects are fairly evenly distributed in the Plan Area, ranging from 9% for northwest aspects to 15% for northeast aspects. Flat terrains account for only 1% of the Plan Area. Under Alternative 3, conservation of aspects would range from 67% for flat terrain to 85% of south aspect. The majority of Plan Area lands for each aspect class will be conserved under Alternative 3 optimizing the potential for successful species range shifts, contractions, and expansions, which may occur in response to climate change. In addition, the conservation of such a high proportion of Plan Area lands across all aspect classes allows for the conservation of the greatest range of natural communities and Covered Species habitats. As a number of plant Covered Species have specific aspect requirements, the conservation of the majority of lands within each aspect class is beneficial to those species. Conserving the majority of each

aspect class within the Plan Area will also promote ecological processes and help sustain natural communities and Covered Species.

Natural Communities

Table IV.7-216 shows the conservation to natural communities within the reserve design. A conservation summary by general community is provided below. Appendix R2 provides a detailed analysis of natural community conservation by ecoregion subarea.

California forest and woodlands

Overall, approximately 63,000 acres (42%) of California forest and woodlands would be conserved under Alternative 3. The majority of conservation would occur in the West Mojave and Eastern Slopes and Pinto Lucerne Valley and Eastern Slopes subareas and approximately 20 acres would be conserved in the Owens River Valley subarea. Conservation would primarily come from BLM LUPA conservation designations. In addition to conservation of California forest and woodlands, CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

California forest and woodlands provide habitat for the following Covered Species: Tehachapi slender salamander, golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, bighorn sheep, and Bakersfield cactus. California forest and woodlands also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-50 in Section IV.7.3.2.1. Therefore, conservation of California forest and woodlands would provide conservation of suitable habitat for these species.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 33,000 acres (30%) of chaparral and coastal scrubs would be conserved under Alternative 3. The majority of conservation would occur in the Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas. There is more conservation in existing conservation than in Conservation Planning Areas or BLM LUPA conservation designations. In addition to conservation of chaparral and coastal scrubs, CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Chaparral and coastal scrubs provide habitat for the following Covered Species: golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, Parish's

daisy, and Bakersfield cactus. Chaparral and coastal scrubs also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-50 in Section IV.7.3.2.1.Therefore, conservation of chaparral and coastal scrubs would provide conservation of suitable habitat for these species.

Desert conifer woodlands

Overall, approximately 187,000 acres (65%) of desert conifer woodlands would be conserved under Alternative 3. The majority of conservation would occur in the Pinto Lucerne Valley and Eastern Slopes and Providence and Bullion Mountains subareas. Conservation of this general community would primarily come from existing conservation (over 75% of total conservation). In addition to conservation of desert conifer woodlands, CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert conifer woodlands provide habitat for the following Covered Species: Tehachapi slender salamander, golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, bighorn sheep, and Parish's daisy. Desert conifer woodlands also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-50 in Section IV.7.3.2.1.Therefore, conservation of desert conifer woodlands would provide conservation of suitable habitat for these species.

Desert outcrop and badlands

Overall, approximately 1,285,000 acres (80%) of desert outcrop and badlands would be conserved under Alternative 3. The majority of the conservation would occur in the Cadiz Valley and Chocolate Mountains and Piute Valley and Sacramento Mountains subareas. Most (approximately 802,000 acres) of the total conservation of desert outcrop and badlands are in areas of existing conservation. In addition to conservation of desert outcrop and badlands, CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert outcrop and badlands provide habitat for the following Covered Species: golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, and bighorn sheep. Desert outcrop and badlands also provide habitat for desert kit fox (Planning Species). Desert outcrop and badlands also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-50 in Section IV.7.3.2.1. Covered and Non-Covered Species associated with desert scrub may also be associated with this general community. Therefore, conservation of desert outcrop and badlands would provide conservation of suitable habitat for these species.

Desert scrubs

Overall, approximately 9,808,000 acres (74%) of desert scrubs would be conserved under Alternative 3. About half of the conserved acreage would occur in the Kingston and Funeral Mountains, Providence and Bullion Mountains, and Cadiz Valley and Chocolate Mountains subareas. However, conservation of desert scrubs is well distributed with conservation in every subarea of the Plan Area. As the most prevalent desert scrub natural community in the Plan Area, lower bajada and fan Mojavean–Sonoran desert scrub accounts for the majority of the conservation of desert scrub communities. The majority (approximately 5,630,000 acres) of the total conservation of desert scrubs would be in existing conservation areas. In addition to conservation of desert scrubs, CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert scrubs provide habitat for the following Covered Species: golden eagle, California condor, Bendire's thrasher, burrowing owl, Swainson's hawk, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, Mohave ground squirrel, bighorn sheep, desert tortoise, flat-tailed horned lizard, Mojave fringe-toed lizard, triple-ribbed milk-vetch, alkali mariposa-lily, desert cymopterus, Mojave tarplant, Little San Bernardino Mountains linanthus, Mojave monkeyflower, and Bakersfield cactus. It also provides habitat for desert kit fox and burro deer (Planning Species). Desert scrubs also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-50 in Section IV.7.3.2.1. Therefore, conservation of desert scrubs would provide conservation of suitable habitat for these species.

Dunes

Overall, approximately 217,000 acres (77%) of dune natural communities would be conserved under Alternative 3. The majority of the conserved acreage would occur in the Mojave and Silurian Valley, Imperial Borrego Valley, and Panamint Death Valley subareas. The remaining conserved acreage is distributed throughout the remaining subareas. The majority (approximately 146,000 acres) of the total conservation of desert dunes would be in existing conservation. In addition to conservation of desert dunes, application of the CMAs would require that dune communities be avoided to the maximum extent feasible in DFAs. In addition, CMA application would prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

Dune communities provide habitat for the following Covered Species: Mojave fringe-toed lizard and flat-tailed horned lizard. Dune communities also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-50 in Section

IV.7.3.2.1. Therefore, conservation of desert dunes would provide conservation of suitable habitat for these species.

Grasslands

Overall, approximately 57,000 acres (24%) of grasslands would be conserved under Alternative 3. The majority of the conserved acreage would occur in the Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas. As the most prevalent grassland natural community in the Plan Area, California Annual and Perennial Grassland accounts for the vast majority of the conservation of grassland communities. Most of the conserved acreage of grasslands would be in existing conservation or BLM LUPA conservation designations. In addition to conservation of grasslands, CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Grassland communities provide habitat for the following Covered Species: golden eagle, burrowing owl, mountain plover, Bendire's thrasher, and Swainson's hawk. Desert kit fox (Planning Species) is also associated with grassland communities. Therefore, impacts to this community may have a negative effect on these species by removing or degrading suitable habitat. Grassland communities also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-50 in Section IV.7.3.2.1. Therefore, conservation of grasslands would provide conservation of suitable habitat for these species.

Riparian

Overall, approximately 705,000 acres (71%) of riparian communities would be conserved under Alternative 3. The majority of the conserved acreage would occur in the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas. As the most prevalent riparian natural community in the Plan Area, Madrean Warm Semi-Desert Wash Woodland/Scrub accounts for the majority of the conservation of riparian communities. Most of the conservation of riparian communities would occur in BLM LUPA conservation designations. In addition to conservation of riparian communities, impacts to riparian communities would not occur under Alternative 3 since application of the CMAs would require that riparian communities be avoided to the maximum extent feasible in DFAs. Riparian communities also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-50 in Section IV.7.3.2.1. In addition, setbacks from riparian communities would be required that range from 200 feet for Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub to 0.25 mile for Southwestern

North American riparian evergreen and deciduous woodland and Southwestern North American riparian/wash scrub.

Riparian communities include microphyll woodlands, which include groundwater-dependent vegetation (e.g., mesquite bosques). Under Alternative 3, conservation for microphyll woodland related natural communities would include: 73% of Madrean warm semi-desert wash woodland/scrub, 58% of Mojavean semi-desert wash scrub, and 79% of Sonoran-Coloradan semi-desert wash woodland/scrub.

Riparian communities provide habitat for the following Covered Species: California black rail, Gila woodpecker, Yuma clapper rail, least Bell's vireo, southwestern willow flycatcher, western yellow-billed cuckoo, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, and Tehachapi slender salamander. Riparian communities also provide habitat for burro deer (Planning Species). In addition, species associated with desert scrub are also associated with Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub. Conservation of riparian communities would benefit these species. Furthermore, there are also CMAs to avoid impacts to riparian species including pre-construction nesting bird surveys for riparian and wetland bird Covered Species and Non-Covered Species.

Wetlands

Overall, approximately 457,000 acres (53%) of wetland communities would be conserved under Alternative 3. About half of the conserved acreage would occur in the Panamint Death Valley and West Mojave and Eastern Slopes subareas with the remaining conserved acreage distributed throughout the remaining subareas. As the most prevalent wetland natural communities in the Plan Area, conservation of North American warm desert alkaline scrub and herb playa and wet flat and Southwestern North American salt basin and high marsh account for the majority of the conservation of riparian communities. Most of the conservation of wetland communities would occur in BLM LUPA conservation designations. In addition to conservation of wetland communities, Arid West freshwater emergent marsh and Californian warm temperate marsh/seep would be avoided under Alternative 3 since application of the CMAs would require that these communities be avoided to the maximum extent feasible in DFAs, including a 0.25-mile setback. Also, CMAs for North American warm desert alkaline scrub and herb playa and wet flat, southwestern North American salt basin and high marsh, and other undifferentiated wetland-related land covers (i.e., "Playa", "Wetland", and "Open Water") would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided riparian or wetland natural communities.

Wetland communities provide habitat for the following Covered Species: California black rail, Yuma clapper rail, tricolored blackbird, California leaf-nosed bat, pallid bat, Townsend's big-

eared bat, desert pupfish, Mohave tui chub, Owens pupfish, and Owens tui chub. Wetland communities also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-50 in Section IV.7.3.2.1. In addition, species associated with desert scrub are also associated with Southwestern North American Salt Basin and High Marsh. Conservation of wetland communities would benefit these species. Furthermore, there are also CMAs to avoid impacts to wetland species including pre-construction nesting bird surveys for riparian and wetland bird Covered Species and Non-Covered Species.

Table IV.7-216
Plan-Wide Conservation Analysis for Natural Communities – Alternative 3

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
California forest and woodland						
Californian broadleaf forest and woodland	72,000	1,000	18,000	800	21,000	29%
Californian montane conifer forest	78,000	25,000	16,000	2,000	42,000	54%
Chaparral and coastal scrub community (Cismontane scrub)						
Californian mesic chaparral	4,000	20	600	200	900	22%
Californian pre-montane chaparral	1,000	0	400	10	500	36%
Californian xeric chaparral	24,000	3,000	1,000	3,000	7,000	28%
Central and south coastal California seral scrub	1,000	0	10	50	70	5%
Central and South Coastal Californian coastal sage scrub	54,000	2,000	8,000	4,000	14,000	27%
Western Mojave and Western Sonoran Desert borderland chaparral	24,000	9,000	200	800	10,000	43%
Desert conifer woodlands						
Great Basin Pinyon - Juniper Woodland	287,000	159,000	16,000	12,000	187,000	65%

Table IV.7-216
Plan-Wide Conservation Analysis for Natural Communities – Alternative 3

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Desert outcrop and badlands						
North American warm desert bedrock cliff and outcrop	1,613,000	802,000	471,000	12,000	1,285,000	80%
Desert Scrub						
Arizonan upland Sonoran desert scrub	57,000	44,000	2,000	800	47,000	82%
Intermontane deep or well-drained soil scrub	106,000	30,000	50,000	2,000	82,000	77%
Intermontane seral shrubland	74,000	1,000	4,000	3,000	9,000	12%
Inter-Mountain Dry Shrubland and Grassland	437,000	110,000	122,000	6,000	238,000	55%
Intermountain Mountain Big Sagebrush Shrubland and steppe	76,000	9,000	18,000	900	28,000	38%
Lower Bajada and Fan Mojavean - Sonoran desert scrub	10,859,000	4,561,000	3,494,000	165,000	8,220,000	76%
Mojave and Great Basin upper bajada and toeslope	1,333,000	838,000	203,000	24,000	1,065,000	80%
Shadscale - saltbush cool semi-desert scrub	279,000	38,000	64,000	18,000	119,000	43%
Southern Great Basin semi-desert grassland	100	0	40	0	40	35%

Table IV.7-216
Plan-Wide Conservation Analysis for Natural Communities – Alternative 3

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Dunes						
North American warm desert dunes and sand flats	282,000	146,000	66,000	5,000	217,000	77%
Grassland						
California Annual and Perennial Grassland	230,000	23,000	19,000	13,000	55,000	24%
California annual forb/grass vegetation	8,000	400	900	1,000	2,000	30%
Riparian						
Madrean Warm Semi-Desert Wash Woodland/Scrub	697,000	195,000	309,000	7,000	510,000	73%
Mojavean semi-desert wash scrub	30,000	7,000	9,000	2,000	18,000	58%
Riparian	600	20	0	300	300	56%
Sonoran-Coloradan semi-desert wash woodland/scrub	191,000	70,000	79,000	3,000	151,000	79%
Southwestern North American riparian evergreen and deciduous woodland	6,000	500	600	2,000	3,000	44%
Southwestern North American riparian/wash scrub	66,000	7,000	9,000	6,000	23,000	35%
Wetland						
Arid West freshwater emergent marsh	4,000	40	200	1,000	1,000	32%
Californian warm temperate marsh/seep	400	0	0	80	80	20%

Table IV.7-216
Plan-Wide Conservation Analysis for Natural Communities – Alternative 3

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	310,000	136,000	76,000	2,000	213,000	69%
Open Water	209,000	23,000	800	24,000	47,000	23%
Playa	78,000	400	35,000	300	36,000	46%
Southwestern North American salt basin and high marsh	261,000	31,000	117,000	10,000	158,000	61%
Wetland	8,000	30	200	500	700	9%
Other Land Cover						
Agriculture	711,000	6,000	3,000	4,000	12,000	2%
Developed and Disturbed Areas	447,000	3,000	3,000	300	7,000	2%
Not Mapped	7,000	200	100	300	700	10%
Rural	114,000	900	3,000	8,000	12,000	11%
Total	**19,040,000**	**7,279,000**	**5,222,000**	**342,000**	**12,843,000**	**67%**

1 Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs).

2 Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), which includes BLM and non-BLM inholdings within the designation.

3 Conservation Planning Areas include areas of the reserve design from which reserve areas would be assembled on private and other public land.

Notes: Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1.2.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Covered Species Habitat

Table IV.7-217 shows the Plan-wide conservation of Covered Species modeled habitat under Alternative 3 (before the application of CMAs). Generally, the percent conservation of Covered Species modeled habitat in available lands is highly variable, ranging from 1%

for greater sandhill crane (primarily found in agricultural areas) to 84% for mountain habitat for bighorn sheep.

Conservation percentages are in large part related to the location and types of habitat modeled for the Covered Species. For example, modeled habitat for greater sandhill crane, which is primarily freshwater wetland and agriculture, is limited to the Palo Verde and Imperial valleys and is mostly within DFAs.

Much of the modeled habitats for desert tortoise and Mojave fringe-toed lizard are in the Mojave Desert in areas that are either already in Existing Conservation or occur in the BLM LUPA conservation designations. Flat-tailed horned lizard modeled habitat is only conserved in the Imperial Borrego Valley, mostly in BLM LUPA conservation designations. Tehachapi slender salamander modeled habitat occurs in the Tehachapi Mountains where conservation is primarily composed of BLM LUPA conservation designations. Furthermore, the siting of the DFAs under Alternative 3 largely avoid habitat for Mojave fringe-toed lizard and Tehachapi slender salamander, and CMAs requiring avoidance of and setbacks from riparian habitat, wetland habitat, and dune habitat would further avoid and minimize the impacts on these species.

Conservation of bird species associated primarily with wetland and riparian habitats, including California black rail, least Bell's vireo, southwestern willow flycatcher, tricolored blackbird, western yellow-billed cuckoo, and Yuma clapper rail would be augmented by CMAs requiring avoidance of and setbacks from riparian and wetland habitats. Conservation of Bendire's thrasher occurs in every subarea of the Plan Area, but is mainly in existing conservation. Burrowing owl, widespread, but mainly associated with open areas in the West Mojave and Eastern Slopes and agricultural areas in the Imperial Borrego Valley, would primarily be conserved in the same subareas and most of the conservation would occur in BLM LUPA conservation designations.

California condor mainly occurs in the West Mojave and Eastern Slopes subarea so the majority of conservation is also in this subarea with most of the conserved acreage in BLM LUPA conservation designations. Golden eagle modeled suitable habitat and associated conservation is widespread in the Plan Area with most of the conservation in existing conservation areas. Swainson's hawk is primarily associated with the West Mojave and Eastern Slopes, Imperial Borrego Valley, and Owens River Valley subareas; of these subareas, at least a quarter of suitable habitat is conserved only in the Owens River Valley subarea. In addition to conservation of suitable habitat, CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs.

Most of the modeled suitable habitat for Gila woodpecker is conserved in the Imperial Borrego Valley, mostly in BLM LUPA conservation designations. About half of the

conservation of mountain plover suitable habitat is in Conservation Planning Areas in the West Mojave and Eastern Slopes subarea.

Conservation of suitable habitat for desert pupfish and Mohave tui chub is mostly in existing conservation areas. Although conservation of desert pupfish is relatively low especially in the Imperial Borrego Valley subarea, avoidance and setback provisions for managed wetlands and agricultural drains would conserve wetland and riparian features within the agricultural matrix and provide conservation benefits to desert pupfish. Owens pupfish and Owens tui chub are conserved primarily in Conservation Planning Areas.

Conservation of suitable habitat for bighorn sheep, both inter-mountain and mountain habitat, is widespread and is mainly in existing conservation areas. The siting of the DFAs under Alternative 3 largely avoid habitat for bighorn sheep. At least half of the conservation of burro deer and Mojave ground squirrel suitable habitat is from BLM LUPA conservation designations. The majority of the available desert kit fox habitat is conserved in each subarea except the West Mojave and Eastern Slopes subarea, which as the highest acreage of available suitable habitat for this Planning Species. Suitable habitat for the bat Covered Species—California leaf-nosed bat, pallid bat, and Townsend's big-eared bat—is widespread and mainly conserved in existing conservation areas. In addition to conservation of suitable habitat for covered mammal species, the CMAs require avoidance of and setbacks from riparian and wetland habitat that would reduce impacts on these habitats used by Mohave ground squirrel, California leaf-nosed bat, pallid bat, and Townsend's big-eared bat.

Conservation of plant species ranges from 7% of suitable habitat for alkali mariposa-lily to 71% of suitable habitat for triple-ribbed milk-vetch. The proportion of suitable habitat conserved in existing conservation, BLM LUPA conservation designations, and Conservation Planning Areas varies by species. However, in addition to the conservation of modeled suitable habitat, the CMAs require surveys for plant Covered Species for all Covered Activities, and the CMAs requiring avoidance of and setbacks from occupied habitat would further reduce the impacts on these species.

In addition to conservation of suitable habitat for Covered Species, compensation CMAs would offset habitat loss for all Covered Species.

Table IV.7-217
Plan-Wide Conservation Analysis for Covered Species Habitat – Alternative 3

Species	Available Lands (acres)	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Amphibian/Reptile						
Agassiz's desert tortoise	9,858,000	3,711,000	3,431,000	187,000	7,328,000	74%
Flat-tailed horned lizard	758,000	151,000	272,000	4,000	427,000	56%
Mojave fringe-toed lizard	1,094,000	403,000	435,000	11,000	848,000	78%
Tehachapi slender salamander	48,000	300	13,000	700	14,000	29%
Bird						
Bendire's thrasher	2,141,000	1,196,000	418,000	28,000	1,642,000	77%
Burrowing owl	5,269,000	479,000	1,319,000	193,000	1,991,000	38%
California black rail	197,000	21,000	13,000	6,000	40,000	20%
California condor	1,240,000	81,000	182,000	50,000	313,000	25%
Gila woodpecker	106,000	10,000	31,000	1,000	43,000	40%
Golden eagle–foraging	10,747,000	5,518,000	3,051,000	110,000	8,680,000	81%
Golden eagle–nesting	4,443,000	2,689,000	861,000	43,000	3,593,000	81%
Greater sandhill crane	617,000	6,000	2,000	1,000	9,000	1%
Least Bell's vireo	226,000	86,000	36,000	18,000	139,000	61%
Mountain plover	828,000	7,000	5,000	14,000	26,000	3%
Southwestern willow flycatcher	317,000	18,000	32,000	17,000	67,000	21%
Swainson's hawk	1,455,000	24,000	60,000	70,000	154,000	11%
Tricolored blackbird	271,000	11,000	7,000	18,000	36,000	13%
Western yellow-billed cuckoo	152,000	15,000	11,000	23,000	49,000	32%
Yuma clapper rail	51,000	10,000	2,000	2,000	13,000	26%
Fish						
Desert pupfish	8,000	900	300	300	1,000	18%
Mohave tui chub	300	200	-	20	200	79%
Owens pupfish	18,000	600	1,000	3,000	5,000	30%

Table IV.7-217
Plan-Wide Conservation Analysis for Covered Species Habitat – Alternative 3

Species	Available Lands (acres)	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Owens tui chub	17,000	700	1,000	3,000	5,000	31%
Mammal						
Bighorn sheep – inter-mountain habitat	3,854,000	1,904,000	1,149,000	23,000	3,077,000	80%
Bighorn sheep – mountain habitat	6,649,000	4,085,000	1,413,000	56,000	5,555,000	84%
California leaf-nosed bat	7,133,000	3,138,000	2,455,000	50,000	5,643,000	79%
Mohave ground squirrel	2,383,000	216,000	866,000	152,000	1,234,000	52%
Pallid bat	16,412,000	6,836,000	4,901,000	273,000	12,010,000	73%
Townsend's big-eared bat	14,677,000	5,879,000	4,334,000	264,000	10,478,000	71%
Plant						
Alkali mariposa-lily	119,000	200	800	8,000	9,000	7%
Bakersfield cactus	278,000	20,000	63,000	12,000	96,000	34%
Barstow woolly sunflower	154,000	3,000	86,000	12,000	101,000	66%
Desert cymopterus	205,000	7,000	83,000	18,000	108,000	53%
Little San Bernardino Mountains linanthus	289,000	87,000	42,000	5,000	134,000	46%
Mojave monkeyflower	161,000	27,000	92,000	700	120,000	75%
Mojave tarplant	265,000	48,000	90,000	4,000	142,000	54%
Owens Valley checkerbloom	147,000	13,000	7,000	17,000	37,000	25%
Parish's daisy	188,000	82,000	45,000	2,000	128,000	68%
Triple-ribbed milk-vetch	8,000	5,000	10	400	5,000	71%

1 Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs).

2 Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), which includes BLM and non-BLM inholdings within the designation.

3 Conservation Planning Areas include areas of the reserve design from which reserve areas would be assembled on private and other public land.

Notes: Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1.2.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For Agassiz's desert tortoise, desert tortoise important areas were identified that include tortoise conservation areas (TCAs), desert tortoise linkages, and desert tortoise high priority habitat (see desert tortoise BGOs in Appendix C). Table IV.7-218 provides a conservation analysis for these desert tortoise important areas, organized by desert tortoise Recovery Units: Colorado Desert, Eastern Mojave, and Western Mojave. Within the Colorado Desert Recovery Unit, 87% of TCAs, linkage habitat, and high priority habitat would be conserved under Alternative 3. Within the Eastern Mojave Recovery Unit, 91% of the important areas would be conserved Alternative 3. Within the Western Mojave Recovery Unit, 77% of TCAs and linkage habitat would be conserved under Alternative 3. CMAs would require avoidance of TCAs, except for impacts associated with transmission or impacts in disturbed portions of TCAs. Additionally, the CMAs would prohibit impacts that affect the viability of desert tortoise linkages. Compensation CMAs would be required for impacts to desert tortoise, including desert tortoise important areas.

Table IV.7-218
Plan-Wide Conservation Analysis for Desert Tortoise Important Areas – Alternative 3

Recovery Unit	Desert Tortoise Important Areas	Available Lands (acres)	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Colorado Desert	High Priority Habitat	387,000	157,000	153,000	3,000	313,000	81%
	Linkage	469,000	126,000	260,000	4,000	390,000	83%
	TCA	3,130,000	1,544,000	1,209,000	14,000	2,768,000	88%
Colorado Desert Total		**3,986,000**	**1,827,000**	**1,622,000**	**21,000**	**3,470,000**	**87%**
Eastern Mojave	Linkage	784,000	421,000	256,000	7,000	684,000	87%
	TCA	2,096,000	1,758,000	171,000	9,000	1,938,000	92%
Eastern Mojave Total		**2,880,000**	**2,179,000**	**427,000**	**16,000**	**2,622,000**	**91%**
Western Mojave	Linkage	1,204,000	391,000	260,000	25,000	676,000	56%
	TCA	2,313,000	1,061,000	962,000	7,000	2,030,000	88%
Western Mojave Total		**3,517,000**	**1,452,000**	**1,222,000**	**32,000**	**2,706,000**	**77%**
Grand Total		**10,383,000**	**5,458,000**	**3,272,000**	**69,000**	**8,799,000**	**85%**

[1] Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs).

[2] Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), which includes BLM and non-BLM inholdings within the designation.

[3] Conservation Planning Areas include areas of the reserve design from which reserve areas would be assembled on private and other public land.

Notes: Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1.2.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For Mohave ground squirrel, Mohave ground squirrel important areas were identified that include key population centers, linkages, expansion areas, and climate change extension areas (see Mohave ground squirrel BGOs in Appendix C). Table IV.7-219 provides a conservation analysis for these Mohave ground squirrel important areas. Approximately 71% of key population centers and 68% of linkages would be conserved under Alternative 3. Expansion areas and climate change extension areas would be conserved at 72% and 46% respectively. The CMAs would prohibit impacts that affect the viability of linkages. Compensation CMAs would be required for impacts to Mohave ground squirrel, including Mohave ground squirrel important areas.

Table IV.7-219
Plan-Wide Conservation Analysis for Mohave Ground Squirrel Important Areas – Alternative 3

Mohave Ground Squirrel Important Area Type	Available Lands (acres)	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Key Population Center	507,000	47,000	289,000	27,000	362,000	71%
Linkage	386,000	30,000	211,000	21,000	262,000	68%
Expansion Area	552,000	77,000	269,000	52,000	398,000	72%
Climate Change Extension	224,000	28,000	52,000	24,000	104,000	46%
Total	**1,669,000**	**181,000**	**821,000**	**124,000**	**1,126,000**	**68%**

1 Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs).

2 Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), which includes BLM and non-BLM inholdings within the designation.

3 Conservation Planning Areas include areas of the reserve design from which reserve areas would be assembled on private and other public land.

Notes: Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1.2.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Within the Plan Area, critical habitat has been designated by the USFWS for the following Covered Species: desert tortoise, southwestern willow flycatcher, desert pupfish, and Parish's daisy. For desert tortoise, approximately 87% of the desert tortoise designated critical habitat would be conserved in Reserve Design Lands under Alternative 3, including 1,517,000 acres in existing conservation areas, 2,079,000 acres in BLM LUPA conservation designations, and 16,000 acres in Conservation Planning Areas. For southwestern willow

flycatcher, approximately 63% of the southwestern willow flycatcher designated critical habitat would be conserved in Reserve Design Lands under Alternative 3, including 900 acres in existing conservation areas, 70 acres in BLM LUPA conservation designations, and 3,000 acres in Conservation Planning Areas. For desert pupfish, approximately 88% of the desert pupfish designated critical habitat would be conserved in Reserve Design Lands under Alternative 3, including 100 acres in existing conservation areas and 500 acres in BLM LUPA conservation designations. For Parish's daisy, approximately 70% of the Parish's daisy designated critical habitat would be conserved in Reserve Design Lands under Alternative 3, including 1,000 acres in BLM LUPA conservation designations.

Non-Covered Species Critical Habitat

Ten Non-Covered Species have Critical Habitat within the Plan Area. Table IV.7-220 shows the total amount of Critical Habitat and the amount within each Plan Wide reserve designation for Non-Covered Species. These reserve designations are considered beneficial impacts for biological resources. All or a substantial portion of each species' Critical Habitat would be within the Reserve Design Lands and within the BLM conservation designations for most species. Critical Habitat for bighorn sheep is predominately within existing conservation and for arroyo toad it would mostly be within Conservation Planning Areas. Critical Habitat for the Pierson's milk-vetch is managed under the Imperial Sand Dunes Recreation Area Management Plan (RAMP), which provides protections for critical habitat within conservation areas and areas designated as closed to motorized (e.g. off-highway vehicle) use.

Table IV.7-220
Critical Habitat within Plan-Wide Reserve Design for Non-Covered Species – Alternative 3

Common Name	Acres of Critical Habitat within the DRECP	Acres of Critical Habitat in Existing Conservation	Acres of Critical Habitat in BLM Conservation Designations	Acres of Critical Habitat in Conservation Planning Areas	Acres in Conservation
Amargosa nitrophila	1,000	0	1,000	0	1,000
Amargosa vole	5,000	1,000	3,000	0	4,000
Arroyo toad	4,000	0	20	3,000	3,020
Ash Meadows gumplant	300	0	300	0	300
Cushenbury buckwheat	600	0	600	0	600
Cushenbury milk-vetch	1,000	0	1,000	0	1,000

Table IV.7-220
Critical Habitat within Plan-Wide Reserve Design for Non-Covered Species – Alternative 3

Common Name	Acres of Critical Habitat within the DRECP	Acres of Critical Habitat in Existing Conservation	Acres of Critical Habitat in BLM Conservation Designations	Acres of Critical Habitat in Conservation Planning Areas	Acres in Conservation
Cushenbury oxytheca	100	0	100	0	100
Lane Mountain milk-vetch	14,000	3,000	11,000	0	14,000
Pierson's milk-vetch	12,000	12,000[2]	0	400	12,000
Peninsular Bighorn sheep	47,000	41,000	400	300	41,700

[1] NLCS and ACEC designations overlap, the entire Amargosa Valley, which contains the Amargosa vole critical habitat, is located within an ACEC.

[2] Pierson's milk-vetch are protected within areas designated as closed to motorized vehicles in the Imperial Sand Dunes RAMP. The ISDRA RAMP is not considered part of the DRECP decision area.

IV.7.3.5.2 Impacts of DRECP Land Use Plan Amendment on BLM Land: Alternative 3

This section addresses two components of effects of the BLM LUPA: the streamlined development of renewable energy and transmission on only BLM land under the LUPA, and the impacts of the amended land use plans themselves.

IV.7.3.5.2.1 Impacts from Renewable Energy and Transmission Development on BLM Land

On BLM lands under the LUPA, Alternative 3 includes DFAs (approximately 211,000 acres) and transmission corridors where approximately 49,000 acres of ground disturbance related impacts and operational impacts would occur.

Impact BR-1: Siting, construction, decommissioning, and operational activities would result in loss of native vegetation.

Table IV.7-221 shows the impacts to natural communities under Alternative 3 within DFAs on BLM Land. An effects summary by general community is provided below in relation to the Plan-wide effects analysis provided in Section IV.7.3.5.1.1. Appendix R2 provides a detailed analysis of natural community effects by ecoregion subarea.

California forest and woodlands

Overall, approximately 40 acres (0.1%) of California forest and woodlands would be impacted under Alternative 3 on BLM Land, approximately the same as the Plan-wide effects. All of this impact would be from transmission effects in the Pinto Lucerne Valley and Eastern Slopes subarea. The same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied on BLM Land with implementation of the BLM LUPA. This includes CMAs that address roosting covered bat species (AM-DFA-BAT-1), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 200 acres (0.8%) of chaparral and coastal scrubs would be impacted under Alternative 3 on BLM Land, which is less than a quarter of the Plan-wide effects to this general community. All of the impacts to chaparral and coastal scrubs would be in the Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas from solar, wind, and transmission development. The same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied on BLM Land with implementation of the BLM LUPA. This includes CMAs that address Covered Species (AM-DFA-BAT-1, AM-DFA-PLANT-1 through AM-DFA-PLANT-3, and AM-RES-BLM-PLANT-1), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

Desert conifer woodlands

Overall, approximately 100 acres (0.3%) of desert conifer woodlands would be impacted under Alternative 3 on BLM Land, which is approximately 13% of the Plan-wide effects. Most of the impacts to desert conifer woodlands would be from solar development in the Pinto Lucerne Valley and Eastern Slopes subarea, but would also come from wind and transmission effects in this subarea. The same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied on BLM Land with implementation of the BLM LUPA. This includes CMAs that address roosting covered bat species (AM-DFA-BAT-1), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

Desert outcrop and badlands

Overall, approximately 5,000 acres (0.4%) of desert outcrop and badlands would be impacted under Alternative 3 on BLM Land, which constitutes approximately 1,000 acres less than the Plan-wide effects. Most of these impacts would occur in the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas. The same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied on BLM Land with implementation of the BLM LUPA. This includes CMAs that address breeding, nesting, or roosting species (AM-DFA-BAT-1), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

Desert scrubs

Overall, approximately 37,000 acres (0.5%) of desert scrubs would be impacted under Alternative 3 on BLM Land, which is about 40% of the Plan-wide effects. Most of these impacts would occur in the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas. The same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied on BLM Land with implementation of the BLM LUPA. These include avoidance, setbacks, and/or suitable habitat impact caps for flat-tailed horned lizard (AM-RES-RL-ICS-8 and AM-RES-RL-ICS-9 and AM-DFA-ICS-16), desert tortoise (AM-DFA-ICS-3 through AM-DFA-ICS-15 and AM-RES-RL-ICS-1 through AM-RES-RL-ICS-7), Mohave ground squirrel (AM-DFA-ICS-36 through AM-DFA-ICS-43 and AM-RES-BLM-ICS-14 through AM-RES-BLM-ICS-17), bat Covered Species (AM-DFA-BAT-1, AM-RES-RL-BAT-1,and AM-RES-RL-BAT-2), and plant Covered Species (AM-DFA-PLANT-1 through AM-DFA-PLANT-3, AM-RES-BLM-PLANT-1, and AM-RES-RL-PLANT-1 through AM-RES-RL-PLANT-3). Furthermore, soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) CMAs would be implemented that would help avoid and minimize these effects and compensation CMAs would offset the effect (COMP-1 and COMP-2).

Dunes

Application of the CMAs would require avoidance of dune communities to the maximum extent feasible in DFAs so there would be no impacts to dunes under BLM LUPA. In addition, the same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied on BLM Land with implementation of the BLM LUPA. This includes CMAs for dune avoidance and minimization (AM-DFA-DUNE-1 through AM-DFA-DUNE-3, AM-RES-BLM-DUNE-1, and AM-RES-BLM-DUNE-2) as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

Grasslands

Overall, approximately 300 acres (0.9%) of grasslands would be impacted under Alternative 3 on BLM Land, which is only about 4% of the Plan-wide effects. The majority of these impacts are from transmission effects in the Pinto Lucerne Valley and Eastern Slopes subarea. The same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied on BLM Land with implementation of the BLM LUPA. This includes CMAs that address breeding, nesting, or roosting species (AM-DFA-AG-2), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

Riparian

Application of the CMAs would require avoidance of riparian communities to the maximum extent feasible in DFAs so there would be no impacts to riparian communities under BLM LUPA. In addition, the same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied on BLM Land with implementation of the BLM LUPA. This includes CMAs for avoidance and minimization from riparian habitat and the Covered Species associated with riparian habitat (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9) as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

Wetlands

Overall, approximately 4,000 acres (1.2%) of wetlands would be impacted under Alternative 3 on BLM Land, which is about a third of the Plan-wide effects. Impacts would be primarily to North American warm desert alkaline scrub and herb playa and wet flat. About half of the impacts would occur in the West Mojave and Eastern Slopes subarea. The same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied on BLM Land with implementation of the BLM LUPA, including avoidance of Arid West freshwater emergent marsh and Californian warm temperate marsh/seep (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9) as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

Table IV.7-221
BLM LUPA Impact Analysis for Natural Communities – Alternative 3

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
California forest and woodland						
Californian broadleaf forest and woodland	11,000	0	0	0	0	0
Californian montane conifer forest	34,000	0	0	0	40	40
Chaparral and coastal scrub community (Cismontane scrub)						
Californian mesic chaparral	500	0	0	0	0	0
Californian pre-montane chaparral	300	0	0	0	0	0
Californian xeric chaparral	5,000	0	0	0	10	10
Central and south coastal California seral scrub	20	0	0	0	0	0
Central and South Coastal Californian coastal sage scrub	13,000	90	10	0	40	100
Western Mojave and Western Sonoran Desert borderland chaparral	200	0	0	0	0	0
Desert conifer woodlands						
Great Basin Pinyon - Juniper Woodland	50,000	90	10	0	50	100
Desert outcrop and badlands						
North American warm desert bedrock cliff and outcrop	1,203,000	2,000	60	500	2,000	5,000
Desert Scrub						
Arizonan upland Sonoran desert scrub	3,000	0	0	0	0	0
Intermontane deep or well-drained soil scrub	69,000	50	10	0	200	200
Intermontane seral shrubland	5,000	50	0	0	20	70
Inter-Mountain Dry Shrubland and Grassland	282,000	700	0	600	400	2,000
Intermountain Mountain Big Sagebrush Shrubland and steppe	24,000	0	0	0	0	0
Lower Bajada and Fan Mojavean - Sonoran desert scrub	6,114,000	19,000	500	5,000	8,000	33,000

Table IV.7-221
BLM LUPA Impact Analysis for Natural Communities – Alternative 3

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Mojave and Great Basin upper bajada and toeslope	406,000	300	30	0	200	500
Shadscale - saltbush cool semi-desert scrub	101,000	700	0	300	200	1,000
Southern Great Basin semi-desert grassland	50	0	0	0	0	0
Dunes						
North American warm desert dunes and sand flats	127,000	0	0	0	0	0
Grassland						
California Annual and Perennial Grassland	28,000	90	0	0	200	300
California annual forb/grass vegetation	1,000	0	0	0	0	0
Riparian						
Madrean Warm Semi-Desert Wash Woodland/Scrub	502,000	0	0	0	0	0
Mojavean semi-desert wash scrub	11,000	0	0	0	0	0
Sonoran-Coloradan semi-desert wash woodland/scrub	122,000	0	0	0	0	0
Southwestern North American riparian evergreen and deciduous woodland	400	0	0	0	0	0
Southwestern North American riparian/wash scrub	10,000	0	0	0	0	0
Madrean Warm Semi-Desert Wash Woodland/Scrub	502,000	0	0	0	0	0
Wetland						
Arid West freshwater emergent marsh	10	0	0	0	0	0
Californian warm temperate marsh/seep	0	0	0	0	0	0
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	147,000	3,000	90	0	100	3,000
Open Water	700	90	10	10	0	100

Table IV.7-221
BLM LUPA Impact Analysis for Natural Communities – Alternative 3

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Playa	26,000	0	0	0	0	0
Southwestern North American salt basin and high marsh	122,000	500	10	0	30	500
Wetland	100	30	0	0	0	30
Other Land Cover – Developed and Disturbed Areas						
Agriculture	6,000	400	0	200	100	700
Developed and Disturbed Areas	44,000	1,000	0	20	100	1,000
Not Mapped	800	900	100	0	0	1,000
Rural	3,000	90	0	50	30	200
Total	**9,472,000**	**29,000**	**900**	**7,000**	**12,000**	**49,000**

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
[2] Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Rare natural community alliances could be impacted under Alternative 3 on BLM lands, including impacts to Joshua tree woodland. CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection that would help avoid and minimize these effects on rare natural communities. Additionally, AM-DFA-ONC-1 and -2 would require inventorying and preserving or transplanting cactus, yuccas, and succulents. While the compensation CMAs would offset the lost habitat acreage of these impacts, the compensation CMAs do not specifically require the replacement of or mitigation for specific rare natural community alliances. After application of the CMAs, impacts to rare natural communities from Alternative 3 would be adverse and would require mitigation.

Impact BR-2: Siting, construction, decommissioning, and operational activities would result in adverse effects to jurisdictional waters and wetlands.

Siting, construction, decommissioning, and operations of Covered Activities have the potential to result in adverse effects to federal or state jurisdictional waters and wetlands.

In the Plan Area, jurisdictional waters and wetlands would likely include the riparian and wetland communities analyzed under Impact BR-1 and may also include other features including playas, seeps/springs, major rivers, and ephemeral drainage networks.

All Covered Activities would be required to comply with existing, applicable federal and state laws and regulations related to jurisdictional waters and wetlands. Additionally, all impacts to riparian communities would be avoided under Alternative 3 through application of the riparian CMAs including riparian setbacks. All impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep wetlands would be avoided under Alternative 3 through application of the wetland CMAs, including wetland setbacks (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). Approximately 4,000 acres of other wetland communities would be impacted under Alternative 3. See the analysis for the loss of native vegetation provided under BR-1 for a discussion of these potential impacts. All or a portion of the estimated wetland impacts could result in adverse effects to jurisdictional waters and wetlands without compensation. Compensation CMAs would offset any impacts determined to be unavoidable.

Additionally, playas, seeps/springs, major rivers, and ephemeral drainage networks are waters and wetland features that provide hydrological functions and may be determined to be jurisdictional waters and wetlands. Adverse effects to these features would have the potential to impact jurisdictional waters and wetlands.

Playa

Approximately 2% (4,000acres) of playa would be impacted by Covered Activities under Alternative 3 on BLM land. Impacts would be associated with solar (3,000 acres), with 100 acre of wind impacts and 100 acres of transmission impacts. Ecoregion subareas of potential impacts to playas include the Cadiz Valley and Chocolate Mountains, Mojave and Silurian Valley, Owens River Valley, Panamint Death Valley, Pinto Lucerne Valley and Eastern Slopes, Providence and Bullion Mountains, and West Mojave and Eastern Slopes subareas.

Avoidance of impacts to wetland communities including playas would benefit Covered Species that utilize these communities. In addition, application of species-specific CMAs would help avoid and minimize impacts to species associated with playas (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). CMAs would also require compliance with all applicable laws and regulations pertaining to wetlands and waters, including playas (AM-PW-9 and AM-LL-2). Compensation CMAs would offset impacts to these features (COMP-1 and COMP-2).

Seep/Spring

Seeps occur within DFAs and transmission corridors and potential impacts to seep/spring have the potential to occur under Alternative 3 on BLM land in the following ecoregion subareas: Owens River Valley and Pinto Lucerne Valley and Eastern Slopes. Impacts to seeps and springs would be adverse absent implementation of avoidance measures. Impacts to seep/spring locations and associated Covered Species and hydrological functions would be avoided through adherence to avoidance and minimization CMAs, including habitat assessments and avoidance of seeps with 0.25 mile setbacks (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). Compensation CMAs would offset any impacts determined to be unavoidable (COMP-1 and COMP-2).

Major Rivers

Under Alternative 3 on BLM land, there would no direct impacts to any of the four major rivers within the Plan Area – Amargosa, Colorado, Mojave, and Owens Rivers. However, development of the DFAs could indirectly impact these resources through alteration of hydrology. Riparian CMAs would require avoidance of these features with setbacks (AM-DFA-RIPWET-1).

Ephemeral Drainages

Ephemeral drainages occur throughout the Plan Area, and some of these features could be determined to state or federal jurisdictional waters. Impacts to ephemeral drainages would likely occur from Covered Activities. Application of riparian avoidance CMAs (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9) would avoid and minimize impacts to a portion of the ephemeral drainages within DFAs. Additionally, all Covered Activities would be required to comply with existing, applicable federal and state laws and regulations related to jurisdictional waters and wetlands.

Impact BR-3: Siting, construction, decommissioning, and operational activities would result in degradation of vegetation.

Siting, construction, and operational Covered Activities would result in the degradation of vegetation through the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants. The degree to which these factors contribute to the degradation of vegetation corresponds to the distribution of Covered Activities on BLM Land that would result in dust, fire, and introduction of invasive plants or that would use dust suppressants and implement fire management. The propensity for vegetation to be at risk of degradation was determined by the overlap between natural community models and the likely distribution of Covered Activities across subareas on BLM Land.

Based on the planned renewable energy capacity, the greatest amount of terrestrial operational impacts on BLM Land would occur in the Imperial Borrego Valley subarea, as shown in Table IV.7-222. As a result, this subarea would have the greatest potential to degrade vegetation as a result in the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants.

Table IV.7-222
BLM LUPA Terrestrial Operational Impacts – Alternative 3

Ecoregion Subarea	Solar Impact[1] (acres)	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Cadiz Valley and Chocolate Mountains	8,000	1,000	-	5,000	14,000
Imperial Borrego Valley	11,000	400	6,000	3,000	20,400
Kingston and Funeral Mountains	-	-	-	-	-
Mojave and Silurian Valley	600	-	-	500	1,100
Owens River Valley	1,000	-	1,000	500	2,500
Panamint Death Valley	1,000	-	-	500	1,500
Pinto Lucerne Valley and Eastern Slopes	3,000	1,000	-	2,000	6,000
Piute Valley and Sacramento Mountains	-	-	-	-	-
Providence and Bullion Mountains	1,000	-	-	400	1,400
West Mojave and Eastern Slopes	4,000	300	-	400	4,700
Total	**29,000**	**4,000**	**7,000**	**12,000**	**52,000**

[1] Solar impacts include ground-mounted distributed generation.

Notes: Terrestrial operational impacts collectively refers to vegetation degradation impacts (BR-3) from dust, dust suppressants, fire, fire management, and invasive plants and wildlife impacts (BR-4) from creation of noise, predator avoidance behavior, lighting and glare. For the purposes of analysis, terrestrial operational impacts were quantified using the project area extent for solar and geothermal, using 25% of the project area for wind, and the right-of-way area for transmission.

Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation, short-term and long-term wind (excluding project area impacts), geothermal project area, and transmission impacts. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Dust and Dust Suppressants

Natural communities, including those with Mojave desert shrubs, are susceptible to vegetation degradation from dust deposition. Impacts to these natural communities would

mostly occur in the Imperial Borrego Valley subarea and to a lesser extent in the Cadiz Valley and Chocolate Mountains subarea. Plant Covered Species, that could also experience vegetation degradation from dust, would mainly be impacted by Covered Activities in the Pinto Lucerne Valley and Eastern Slopes subarea, which contains most of the impacts to plant Covered Species habitat on BLM Land. Therefore, considering the distribution of Covered Activities that would cause dust as well as the sensitive natural communities and plant Covered Species the Imperial Borrego Valley and Pinto Lucerne Valley and Eastern Slopes subareas would experience the greatest magnitude of vegetation degradation resulting from dust.

The application of dust suppressants is a common management practice, a Covered Activity under the Plan, and has been shown to effectively reduce dust. Dust-related degradation of vegetation would be further minimized with the incorporation of avoidance and minimization CMAs. The Plan-wide avoidance and minimization CMAs would generally identify vegetation in the project area (AM-PW-1), utilize standard practices to minimize the amount of exposed soils (AM-PW-14) and reduce dust caused by soil erosion (AM-PW-10). Additionally, Alternative 3 would implement CMAs that would identify and protect or salvage specific plant species, reducing their exposure to dust. Setbacks and suitable habitat impact caps would also be implemented for plant Covered Species in DFAs and in the reserve design envelope (AM-DFA-PLANT-1 through AM-DFA-PLANT-3).

Riparian and wetland natural communities would be susceptible to the adverse effects of dust suppressants including chemical and physical changes to an ecosystem, alter hydrological function of soils and drainage areas, and increase pollutant loads in surface water. The largest amount of impacts from Covered Activities, which corresponds to the potential greatest magnitude of vegetation degradation from adverse dust suppressant effects, would be located in the West Mojave and Eastern Slopes subarea. Plant Covered Species that could also experience vegetation degradation from dust suppressants, would mainly be impacted by Covered Activities in the Pinto Lucerne Valley and Eastern Slopes subarea. Therefore, these subareas would experience the greatest magnitude of impacts from the application of dust suppressants.

Avoidance and minimization CMAs implemented as part of Alternative 3, including AM-PW-9 and AM-PW-10, would utilize standard practices to reduce erosion and runoff of dust suppressant into sensitive vegetation. Setbacks and avoidance requirements for all riparian natural communities and some wetland natural communities that would be implemented as part of the CMAs would minimize potential adverse effects of dust suppressants on these communities (AM-DFA-RIPWET-1).

Fire and Fire Management

Anthropogenic ignitions of fires that could result from operational and maintenance activities associated with renewable energy facilities could destroy the natural communities found in the Plan Area. Desert scrub natural communities are naturally slow to recover from fire episodes, which can lead to permanent community type conversion. On BLM Land, the impacts to desert scrub natural communities would mainly occur within the Cadiz Valley and Chocolate Mountains subarea and to a lesser extent in the West Mojave and Eastern Slopes subarea.

Construction and maintenance of fire breaks and other fire management techniques would typically result in the removal of vegetation from woodland, chaparral, and grassland natural communities. However, fire management in the form of fuels management, may benefit natural habitats if conducted in areas of non-native, invasive, species infestations (e.g. salt ceder hot spots). California forest and woodlands, chaparral natural communities, and 3 grassland natural communities would be impacted on BLM Land, under Alternative 3. These impacts from Covered Activities, which correspond to the amount of potential vegetation degradation resulting from fire and fire management, would predominantly occur in the Pinto Lucerne Valley and Eastern Slopes subarea, which would experience approximately 81% of impacts to these natural communities. To a lesser extent, impacts to these natural communities would also occur in the West Mojave and Eastern slopes subarea. Under Alternative 3 avoidance and minimization CMAs would be implemented to minimize the potential adverse effects of fire and fire management, including AM-PW-12 that would require projects to minimize the amount of vegetation clearing and fuel modification.

Invasive Plants

The adverse effects of invasive plants, include increasing the fuel load and the frequency of fires in plant communities and allelopathic effects that hinder the growth or establishment of other plant species. The natural communities and plant Covered Species found on BLM Land are generally at risk of adverse effects from the introduction of invasive plants. Therefore, the most vegetation degradation caused by introduction of invasive plants would occur in the Cadiz Valley and Chocolate Mountains as well as the West Mojave and Eastern Slopes subareas. Plant Covered Species found on BLM Land would also experience potential vegetation degradation as a result of Covered Activities. The Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas would have the largest amount of impacts to plant Covered Species on BLM Land.

Under Alternative 3 avoidance and minimization CMAs would be implemented to minimize vegetation degradation from invasive plants, including AM-PW-7 that would ensure the timely restoration of temporarily disturbed areas that could otherwise promote invasive plants. Additional CMAs would use standard practices to control weeds and invasive plants

(AM-PW-11) and require the responsible use of herbicides to reduce potential vegetation degradation (AM-PW-15) for all Covered Activities.

Impact BR-4: Siting, construction, decommissioning, and operational activities would result in loss of listed and sensitive plants; disturbance, injury, and mortality of listed and sensitive wildlife; and habitat for listed and sensitive plants and wildlife.

Impact BR-4 described at the Plan-wide level provides an impact analysis for Covered Species habitat by ecoregion subarea, specific Covered Species impact analyses, an indirect and terrestrial operational impact analysis for Covered Species, and a non-Covered Species impact analysis. The following provides an impact analysis for Covered Species on BLM-administered lands. Most of the impacts to plant and wildlife species and their habitat under the BLM LUPA would occur in the Imperial Borrego Valley, West Mojave and Eastern Slopes, and Cadiz Valley and Chocolate Mountains subareas.

Covered Species Habitat Impact Analysis by Ecoregion Subarea

West Mojave and Eastern Slopes Ecoregion Subarea

Renewable energy development in the West Mojave and Eastern Slopes subarea would mostly be from solar development, but would also include impacts from wind and transmission development. Typical impacts from these Covered Activities on plant and wildlife species and their habitat is described in Section IV.7.2. Suitable habitat for Agassiz's desert tortoise would be impacted in this subarea. Compensation CMAs would offset habitat loss for this species.

There are impacts to suitable habitat for several bird Covered Species in the West Mojave and Eastern Slopes subarea, including Bendire's thrasher, burrowing owl, California condor, golden eagle, mountain plover, southwestern willow flycatcher, Swainson's hawk, and tricolored blackbird. CMAs requiring avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further avoid and minimize the impacts on southwestern willow flycatcher and tricolored blackbird to less than the acreage reported in Table IV.7-223. Additionally, the CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs (AM-DFA-AG-2). Compensation CMAs would offset habitat loss for these species.

Suitable habitat for bighorn sheep, desert kit fox, Mohave ground squirrel, pallid bat, and Townsend's big-eared bat would be impacted in this subarea. The siting of the DFAs under the BLM LUPA largely avoid habitat for bighorn sheep. The CMAs require avoidance of and setbacks from riparian and wetland habitat (AM-DFA-RIPWET-1) that would further reduce the impacts on these habitats used by Mohave ground squirrel, pallid bat, and

Townsend's big-eared bat to less than the acreage reported in Table IV.7-223. Compensation CMAs would offset habitat loss for these species.

Suitable habitat for the following plant species would be impacted in the West Mojave and Eastern Slopes subarea: alkali mariposa-lily, Bakersfield cactus, Barstow woolly sunflower, desert cymopterus, Mojave monkeyflower, and Mojave tarplant. Although modeled suitable habitat for these species may be impacted by Covered Activities in this subarea, the CMAs require surveys for plant Covered Species for all Covered Activities, and the CMAs requiring avoidance of and setbacks from occupied habitat (AM-DFA-PLANT-1 through AM-DFA-PLANT-3) would further reduce the impacts on these species to less than the acreage reported in Table IV.7-223. Compensation CMAs would offset habitat loss for these species.

Cadiz Valley and Chocolate Mountains Ecoregion Subarea

Renewable energy development within the Cadiz Valley and Chocolate Mountains subarea would be primarily from solar energy development, but would also include impacts from wind and transmission. The Cadiz Valley and Chocolate Mountains subarea provides suitable habitat for amphibians and reptiles, including Agassiz's desert tortoise and Mojave fringe-toed lizard, that would be impacted. The siting of the DFAs under the BLM LUPA largely avoid habitat for Mojave fringe-toed lizard, and CMAs requiring avoidance of and setbacks from dune habitat (AM-DFA-DUNE-1 through AM-DFA-DUNE-3) would further avoid and minimize the impacts on this species to less than the acreage reported in Table IV.7-223. Compensation CMAs would offset habitat loss for these species.

Impacts would occur to the following covered bird species in this subarea: Bendire's thrasher, burrowing owl, Gila woodpecker, golden eagle, greater sandhill crane, and mountain plover. In addition, compensation CMAs would offset habitat loss for these species.

Suitable habitat for the following Covered mammals would be impacted in the Cadiz Valley and Chocolate Mountains subarea: bighorn sheep, California leaf-nosed bat, pallid bat, and Townsend's big-eared bat. Suitable habitat for burro deer and desert kit fox, both Planning Species, would also be impacted. The siting of the DFAs under the BLM LUPA largely avoid habitat for bighorn sheep. The CMAs require avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further reduce the impacts on those habitats used by California leaf-nosed bat, pallid bat, and Townsend's big-eared bat to less than the acreage reported in Table IV.7-223. Compensation CMAs would offset habitat loss for these species.

Imperial Borrego Valley Ecoregion Subarea

Renewable energy development within the Imperial Borrego Valley subarea would be primarily from solar energy development, but would also include impacts from wind,

geothermal, and transmission development. The Imperial Borrego Valley subarea provides suitable habitat for Agassiz's desert tortoise and flat-tailed horned lizard that would be impacted. The siting of the DFAs under the BLM LUPA largely avoid habitat for flat-tailed horned lizard, and CMAs requiring avoidance of and setbacks from dune habitat (AM-DFA-DUNE-1 through AM-DFA-DUNE-3) would further avoid and minimize the impacts on this species to less than the acreage reported in Table IV.7-223.

Impacts would occur to suitable habitat for the following covered bird species in this subarea: Bendire's thrasher, burrowing owl, California black rail, Gila woodpecker, golden eagle, greater sandhill crane, mountain plover, southwestern willow flycatcher, Swainson's hawk, and western yellow-billed cuckoo. CMAs require avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further avoid and minimize the impacts on southwestern willow flycatcher, California black rail, Yuma clapper rail, and western yellow-billed cuckoo to less than the acreage reported in Table IV.7-223. Additionally, the CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs (AM-DFA-AG-2).

Only minimal impacts would occur to bighorn sheep mountain habitat (approximately 100 acres) in this subarea. Impacts to suitable habitat for other covered mammals species would occur for California leaf-nosed bat, pallid bat, and Townsend's big-eared bat, as well as the Planning Species burro deer and desert kit fox. The siting of the DFAs under the BLM LUPA largely avoid habitat for bighorn sheep. The CMAs require avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further reduce the impacts on these habitats used by California leaf-nosed bat, pallid bat, and Townsend's big-eared bat to less than the acreage reported in Table IV.7-223.

Table IV.7-223
BLM LUPA Impact Analysis for Covered Species Habitat – Alternative 3

Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Amphibian/Reptile						
Agassiz's desert tortoise	5,799,000	7,000	300	900	4,000	13,000
Flat-tailed horned lizard	428,000	9,000	10	5,000	3,000	17,000
Mojave fringe-toed lizard	731,000	2,000	80	-	2,000	4,000
Tehachapi slender salamander	7,000	-	-	-	-	-
Bird						
Bendire's thrasher	773,000	900	90	50	300	1,000
Burrowing owl	1,707,000	15,000	400	5,000	4,000	24,000

Table IV.7-223
BLM LUPA Impact Analysis for Covered Species Habitat – Alternative 3

Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
California black rail	31,000	600	-	400	100	1,000
California condor	242,000	2,000	50	90	200	2,000
Gila woodpecker	38,000	100	-	-	20	100
Golden eagle–foraging	6,216,000	8,000	300	900	5,000	14,000
Golden eagle–nesting	2,421,000	400	20	20	1,000	2,000
Greater sandhill crane	3,000	200	-	100	50	400
Least Bell's vireo	69,000	20	-	10	10	40
Mountain plover	7,000	400	-	100	70	600
Southwestern willow flycatcher	46,000	900	30	700	200	2,000
Swainson's hawk	112,000	3,000	70	700	200	4,000
Tricolored blackbird	13,000	200	10	-	50	200
Western yellow-billed cuckoo	19,000	30	-	-	-	40
Yuma clapper rail	5,000	10	-	-	-	10
Fish						
Desert pupfish	500	-	-	-	-	-
Owens pupfish	4,000	-	-	-	20	20
Owens tui chub	4,000	-	-	-	20	20
Mammal						
Bighorn sheep – inter-mountain habitat	2,243,000	2,000	40	90	1,000	4,000
Bighorn sheep – mountain habitat	3,568,000	800	90	10	2,000	3,000
California leaf-nosed bat	4,444,000	13,000	300	3,000	6,000	23,000
Mohave ground squirrel	999,000	5,000	100	900	1,000	7,000
Pallid bat	8,943,000	23,000	600	6,000	11,000	41,000
Townsend's big-eared bat	7,599,000	24,000	700	5,000	10,000	40,000
Plant						
Alkali mariposa-lily	2,000	60	10	-	10	80
Bakersfield cactus	77,000	50	-	-	-	50
Barstow woolly sunflower	72,000	40	-	-	-	40
Desert cymopterus	67,000	100	-	-	-	100

Table IV.7-223
BLM LUPA Impact Analysis for Covered Species Habitat – Alternative 3

Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Little San Bernardino Mountains linanthus	80,000	300	30	-	10	300
Mojave monkeyflower	116,000	80	10	-	200	300
Mojave tarplant	136,000	60	-	60	100	300
Owens Valley checkerbloom	55,000	-	-	-	60	70
Parish's daisy	85,000	600	70	-	100	800
Triple-ribbed milk-vetch	4,000	-	-	-	-	-

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
[2] Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Specific Covered Species Impact Analyses

For Agassiz's desert tortoise, desert tortoise important areas were identified that include tortoise conservation areas (TCAs), desert tortoise linkages, and desert tortoise high priority habitat (see desert tortoise BGOs in Appendix C). Table IV.7-224 provides an impact analysis for these desert tortoise important areas in the BLM LUPA area, organized by desert tortoise Recovery Units: Colorado Desert, Eastern Mojave, and Western Mojave. Within the Colorado Desert Recovery Unit, 5,000 acres of TCAs, linkage habitat, and high priority habitat would be impacted under Alternative 3. Within the Eastern Mojave Recovery Unit, no habitat would be impacted under Alternative 3. Within the Western Mojave Recovery Unit, 4,000 acres of TCAs and linkage habitat would be impacted under Alternative 3. CMAs would require avoidance of TCAs, except for impacts associated with transmission or impacts in disturbed portions of TCAs. Additionally, the CMAs would prohibit impacts that affect the viability of desert tortoise linkages (AM-DFA-ICS-1 and AM-DFA-ICS-3 through 15). Compensation CMAs would be required for impacts to desert tortoise, including desert tortoise important areas.

Table IV.7-224
BLM LUPA Impact Analysis for Desert Tortoise Important Areas – Alternative 3

Recovery Unit	Desert Tortoise Important Areas	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Colorado Desert	High Priority Habitat	354,000	70	-	-	30	100
	Linkage	406,000	400	**20**	-	30	500
	TCA	1,728,000	700	**30**	-	3,000	4,000
Colorado Desert Total		**2,489,000**	**1,000**	*50*	-	**3,000**	**5,000**
Eastern Mojave	Linkage	728,000	-	-	-	-	-
	TCA	239,000	-	-	-	-	-
Eastern Mojave Total		**967,000**	-	-	-	-	-
Western Mojave	Linkage	796,000	2,000	**200**	-	400	3,000
	TCA	964,000	400	**10**	-	700	1,000
Western Mojave Total		**1,759,000**	**3,000**	*200*	-	**1,000**	**4,000**
	Total	**5,215,000**	**4,000**	**200**	-	**4,000**	**9,000**

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
[2] Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For golden eagle, a territory-based analysis was conducted (see methods and results in the Chapter IV.7 portion of Appendix R2). Using the golden eagle nest database, golden eagle territories were identified and individually buffered by 1 mile (representing breeding areas around known nests) and 4 miles (representing use areas around known nests). A total of 146 territories occur wholly or partially within the BLM LUPA area. Under Alternative 3, 30 territories have DFAs or transmission corridors within 1 mile of a nest. Implementation of the CMAs for golden eagles (AM-DFA-ICS-2) would prohibit siting or construction of Covered Activities within 1 mile of an active golden eagle nest; therefore, impacts within 1 mile of these golden eagle territories would be avoided. Under Alternative 3, 68 territories have DFAs or transmission corridors within 4 miles of nest, and the use area of these territories could be impacted through harassment and reduced foraging opportunities by Covered Activities depending of the siting of specific projects. The CMAs for golden eagles (Section II.3.1.2.5) and the approach to golden eagles (see Appendix H) describes how the impact to golden eagles would be avoided, minimized, and compensated. Based on the 2013 analysis, no more than 15 golden eagles per year in 2014 would be allowed to be taken within the Plan Area, which would be reassessed annually.

For bighorn sheep, bighorn sheep mountain habitat and intermountain (linkage) habitat have been identified in the Plan Area. Under Alternative 3 on BLM land, approximately 3,000 acres of mountain habitat and 4,000 acres of intermountain habitat would be impacted. Alternative 3 identified DFAs that largely avoid impacts to bighorn sheep mountain and intermountain habitat, and avoidance, minimization, and compensation CMAs have been developed to offset the loss of habitat for bighorn sheep.

For Mohave ground squirrel, Mohave ground squirrel important areas were identified that include key population centers, linkages, expansion areas, and climate change extension areas (see Mohave ground squirrel BGOs in Appendix C). Table IV.7-225 provides an impact analysis for these Mohave ground squirrel important areas in the BLM LUPA area. A total of approximately 100 acres of impact would occur in climate change extension areas under Alternative 3. A total of 2,000 acres of impact to linkage and 1,000 acres of impact to expansion areas would occur under Alternative 3. The CMAs would prohibit impacts that affect the viability of linkages (AM-DFA-ICS-36 through AM-DFA-ICS-43). Compensation CMAs would be required for impacts to Mohave ground squirrel, including Mohave ground squirrel important areas.

Table IV.7-225
BLM LUPA Impact Analysis for Mohave Ground Squirrel Important Areas – Alternative 3

Mohave Ground Squirrel Important Area Type	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Key Population Center	299,000	400	10	100	400	900
Linkage	280,000	500	-	500	600	2,000
Expansion Area	282,000	900	10	400	100	1,000
Climate Change Extension	92,000	-	-	-	90	100
Total	**954,000**	**2,000**	**10**	**1,000**	**1,000**	**4,000**

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
[2] Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Within the Plan Area, critical habitat has been designated by the USFWS for the following Covered Species: desert tortoise, southwestern willow flycatcher, desert pupfish, and Parish's daisy. For desert tortoise, approximately 5,000 acres of impact designated critical

habitat would result from the development of Covered Activities on BLM-administered lands under Alternative 3 located in the Chuckwalla, Fremont-Kramer, Ord-Rodman, and Superior-Cronese critical habitat units. Under Alternative 3, no impacts to critical habitat designated for southwestern willow flycatcher, desert pupfish, or Parish's daisy would occur from the development of Covered Activities on BLM-administered lands.

Indirect and Terrestrial Operational Impact Analysis

Siting, construction, and operational Covered Activities could result in the potential disturbance, injury, and mortality of listed and sensitive wildlife from noise, predator avoidance behavior, as well as light and glare. The degree to which these factors contribute to the disturbance of sensitive wildlife corresponds to the distribution of Covered Activities on BLM Land that would result in noise, predator avoidance behavior, or light and glare.

Based on the planned renewable energy capacity on BLM Land, most of the terrestrial operational impacts would occur in the Imperial Borrego Valley subarea, as shown in Table IV.7-222. The Cadiz Valley and Chocolate Mountains and West Mojave and Eastern Slopes subareas would also experience prevalent amounts of terrestrial operational impacts on BLM Land. As a result, these subareas would have the greatest potential to disturbance of sensitive wildlife from noise, predator avoidance behavior, as well as light and glare.

Noise

Noise can cause physical damage to wildlife as well as behavioral changes in habitat use, activity patterns, reproduction, and foraging. Bird Covered Species, in particular during the nesting seasons, are expected to be sensitive to adverse noise effects. The largest amount of impacts to bird Covered Species habitat on BLM Land would be located in the Imperial Borrego Valley subarea and to a lesser extent in the West Mojave and Eastern Slopes as well as the Cadiz Valley and Chocolate Mountains subareas. Smaller mammals, such as the Mohave ground squirrel, and reptiles, such the Mojave fringe-toed lizard and flat-tailed horned lizard, could experience increased predation from noise hindering their ability to detect predators. Overall, impacts on BLM Land to the habitat for these Covered Species would mostly occur in the Imperial Borrego Valley and West Mojave and Eastern Slopes subarea. As such, the disturbance of wildlife from noise would predominantly occur in the Imperial Borrego Valley as well as the West Mojave and Eastern Slopes subareas.

The disturbance and injury of wildlife from noise-related effects would be reduced through the implementation of avoidance and minimization CMAs under Alternative 3. The CMA AM-PW-13 would minimize noise generated from Covered Activities using standard practices while other CMAs that would avoid and setback Covered Activities from noise-sensitive wildlife including seasonal setbacks for nesting birds; setbacks from riparian and wetland habitat benefitting bids, amphibians, and small mammals; and avoidance of Mohave ground squirrel's during operations (AM-DFA-RIPWET-1, AM-DFA-RIPWET-5, and AM-DFA-ICS-36).

Predator Avoidance Behavior

The effects of predator avoidance behavior can occur for some wildlife in response to human activities during siting, construction, and operations. Different wildlife species may have varying sensitivities to predator avoidance behavior and may experiences different magnitudes of responses to Covered Activities. However, Covered Activities are expected to generally result in predator avoidance and other behavioral changes in most wildlife species that are spread throughout BLM Land. Therefore, the most disturbance of wildlife from predator avoidance behavior would occur in the Imperial Borrego Valley as well as the Cadiz Valley and Chocolate Mountains subareas, where most of the terrestrial operational impacts on BLM Land are anticipated.

Under Alternative 3, avoidance and minimization CMAs for siting Covered Activities away from sensitive wildlife habitat would be implemented for riparian and wetland habitat, wildlife species that inhabit agricultural lands, and for particular species such as the Mohave ground squirrel (AM-DFA-RIPWET-1, AM-DFA-RIPWET-5, AM-DFA-AG-2, and AM-DFA-ICS-36). Additional CMAs would inform workers of actions that could potentially affect wildlife behavior and restrict activities that could disturb wildlife and their access to water and foraging habitat (AM-PW-5, AM-PW-13 and AM-RES-RL-DUNE-2). Further seasonal restrictions would also be implemented for recreational activities that might affect Bighorn sheep in the reserve design envelope (AM-RES-BLM-ICS-11). The potential disturbance of wildlife from predator avoidance behavior caused by siting, construction, and operational Covered Activities would be minimized by these measures, which are applicable on BLM Land.

Light and Glare

Exposure of wildlife to light and glare can alter wildlife behavior including foraging, migration, and breeding. Solar projects would produce increased levels of glare due to the large amount of reflective panel or heliostat surfaces and would have greater effects on wildlife than other renewable energy technologies. Potential adverse effects associated with light and glare from solar projects, including solar flux and bird collisions from the lake effect are analyzed in BR-9. As described above, most of the terrestrial operational impacts from all renewable energy technology types would occur in the Imperial Borrego Valley and Cadiz Valley and Chocolate Mountains subareas. Similarly, impacts from solar projects on BLM Land would primarily occur in the Imperial Borrego Valley subarea while the Cadiz Valley and Chocolate Mountains and West Mojave and Eastern Slopes subareas would also experience prevalent terrestrial operational impacts from solar development. As a result, these subareas would have the greatest potential to disturbance of sensitive wildlife from noise, predator avoidance behavior, as well as light and glare.

Bats and other diurnal predators may exploit night lighting that increases prey detectability, but would also be attracted to areas of greater development that increase potential hazards such as collision. Impacts to habitat for bats would as a result of Covered

Activities on BLM Land would mainly be located in the Cadiz Valley and Chocolate Mountains subarea and to a lesser extent in the Imperial Borrego Valley subarea. Migratory birds that fly during the night may be affected by aviation safety lighting. For bird Covered Species the Imperial Borrego Valley subarea is primarily affected, containing the most impacts to bird Covered Species habitat on BLM Land. Therefore, considering the distribution solar and other renewable energy technologies and impacts on habitat for species sensitive light and glare the greatest wildlife disturbance is anticipated to occur in the Imperial Borrego Valley and Cadiz Valley and Chocolate Mountains subareas.

Alternative 3 would implement avoidance and minimization CMAs on BLM Land specifically intended to reduce effects of lighting and glare including AM-PW-14, which would implement standard practices for shielding and reducing the use of lights, as well as AM-DFA-RIPWET-4, which specifically restricts lighting within one mile of riparian or wetland vegetation. Other CMAs applicable to BLM Land would implement setbacks for riparian and wetland habitat, wildlife species that inhabit agricultural lands, and for smaller mammals, which would minimize their exposure to light and glare from Covered Activities (AM-DFA-RIPWET-1, AM-DFA-RIPWET-5, and AM-DFA-AG-2,).

Non-Covered Species

Potential impacts to Non-Covered Species on BLM Land were analyzed as described in Section IV.7.3.2.1. Table IV.7-226 provides an estimation of the impacts to natural communities associated with Non-Covered Species. While estimation of impacts to natural communities likely overestimates the potential impacts to Non-Covered Species habitats, it provides a general range of level of impact.

Impacts to the dune community, riparian communities, arid west freshwater emergent marsh, and Californian warm temperate marsh/seep would be avoided through implementation of CMAs, so impacts to potential habitat for each of these species is likely greater than would actually occur. For some species, impacts would be further minimized through avoidance of the specific natural communities required for those species, e.g. dune-, spring-, or cave-restricted invertebrates, or riparian-obligate bird species. The total impact to potential habitat across all technology types is less than 1%, with the exception of the grassland community at approximately 1% and within the agriculture/rural land cover areas at approximately 10%.

Under the Alternative 3, impacts to approximately 60 acres of Lane Mountain milk-vetch critical habitat on BLM lands would have the potential to occur from transmission. This calculation of impacts from transmission is derived from the transmission corridors overlapped with designated critical habitat, thus resulting is an overestimation of actual ground disturbance.

The results of impacts on Non-Covered Species from the creation of noise, predator avoidance behavior, and light and glare would be similar to those described for the Covered Species.

Table IV.7-226
BLM LUPA Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 3

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
California forest and woodland/ Desert conifer woodlands	Coast horned lizard, grey vireo, loggerhead shrike, yellow warbler, American badger, bighorn sheep, fringed myotis, hoary bat, long-eared myotis, pocketed free-tailed bat, spotted bat, Tehachapi pocket mouse, western mastiff bat, western small-footed myotis, Amargosa beardtongue, Charlotte's phacelia, creamy blazing star, Cushenbury buckwheat, Cushenbury milk-vetch, Cushenbury oxytheca, Kern buckwheat, Piute Mountains jewel-flower, purple-nerve cymopterus, San Bernardino Mountains dudleya, short-joint beavertail cactus, Spanish needle onion, Tracy's eriastrum, Cushenbury buckwheat	64,000	100	10	0	100	210	0.3%
Desert Scrub/ Chaparral	Arroyo toad, banded gila monster, Coast horned	7,023,000	21,000	600	6,000	9,100	36,700	0.5%

Table IV.7-226
BLM LUPA Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 3

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
Communities	lizard, Colorado Desert fringe-toed lizard, Couch's spadefoot, rosy boa, bald eagle, bank swallow, Crissal thrasher, Ferruginous hawk, gilded flicker, grey vireo, Le Conte's thrasher, loggerhead shrike, long-eared owl, Lucy's warbler, northern harrier, yellow warbler, American badger, Arizona myotis, big free-tailed bat, bighorn sheep, cave myotis, fringed myotis, hoary bat, long-eared myotis, Palm Springs pocket mouse, pocketed free-tailed bat, spotted bat, Tehachapi pocket mouse, western mastiff bat, western small-footed myotis, western yellow bat, yellow-eared pocket mouse, Yuma myotis, Algodones Dunes sunflower, Ash Meadows							

Table IV.7-226
BLM LUPA Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 3

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	gum plant, Amargosa beardtongue, bare- stem larkspur, Charlotte's phacelia, Cima milk-vetch, Coachella Valley milk-vetch, creamy blazing star, Cushenbury buckwheat, Cushenbury milk-vetch, Cushenbury oxytheca, desert pincushion, Emory's crucifixion-thorn, flat-seeded spurge, forked buckwheat, Harwood's eriastrum, Harwood's milkvetch, Inyo County star-tulip, Kelso Creek monkeyflower, Kern buckwheat, Las Animas colubrina, Lane Mountain Milk-Vetch, Mojave Desert plum, Mojave milkweed, Munz's Cholla, nine-awned pappus grass, Orcutt's woody aster, Orocopia sage, Parish's club cholla, Pierson's milk-vetch, pink fairy-							

Table IV.7-226
BLM LUPA Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 3

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	duster, Piute Mountains jewel-flower, purple-nerve cymopterus, Red Rock poppy, Red Rock tarplant, Robinson's monardella, Rusby's desert-mallow, sand food, Sodaville milk-vetch, short-joint beavertail cactus, Spanish needle onion, Thorne's buckwheat, Tracy's eriastrum, Utah beardtongue, white bear poppy, White-margined beardstongue, Wiggin's croton, Flat-seeded spurge, Parish's phacelia, Parish's alkali grass							
Dunes[3]/ Desert Outcrop and Badlands	Banded gila monster, barefoot gecko, Coast horned lizard, Colorado Desert fringe-toed lizard, Couch's spadefoot, rosy boa, bald eagle, bank swallow, Le Conte's thrasher, loggerhead shrike, long-eared owl,	1,330,000	2,000	100	500	2,000	4,600	0.3%

Table IV.7-226
BLM LUPA Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 3

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	northern harrier, Amargosa vole, big free-tailed bat, bighorn sheep, cave myotis, bat, spotted bat, western mastiff bat, Yuma myotis, Algodones Dunes sunflower, Ash Meadows gum plant, Amargosa beardtongue, Amargosa niterwort, Charlotte's phacelia, Cima milk-vetch, Coachella Valley milk-vetch, creamy blazing star, desert pincushion, Emory's crucifixion-thorn, flat-seeded spurge, forked buckwheat, Harwood's eriastrum, Harwood's milkvetch, Inyo County star-tulip, Las Animas colubrina, Mojave Desert plum, Mojave milkweed, nine-awned pappus grass, Orcutt's woody aster, Orocopia sage, Palmer's jackass clover, Parish's club cholla, Pierson's							

Table IV.7-226
BLM LUPA Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 3

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	milk-vetch, pink fairy-duster, purple-nerve cymopterus, Red Rock poppy, Red Rock tarplant, Robinson's monardella, Rusby's desert-mallow, sand food, Spanish needle onion, Thorne's buckwheat, Utah beardtongue, white bear poppy, Wiggin's croton, Palmer's jackass clover, white-margined beardtongue, flat-seeded spurge							
Grassland	Coast horned lizard, American peregrine falcon, bank swallow, Ferruginous hawk, long-eared owl, northern harrier, white-tailed kite, Amargosa vole, American badger, spotted bat, Cushenbury milk-vetch, Cushenbury oxytheca, short-joint beavertail cactus	29,000	100	0	0	200	300	1%

Table IV.7-226
BLM LUPA Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 3

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
Riparian/ Wetlands	Arroyo toad, California red-legged frog, Coast horned lizard, Couch's spadefoot, Western pond turtle, American peregrine falcon, Arizona Bell's vireo, bald eagle, bank swallow, Crissal thrasher, gilded flicker, elf owl, Inyo California towhee, loggerhead shrike, long-eared owl, Lucy's warbler, northern harrier, redhead, vermillion flycatcher, white-tailed kite, yellow-breasted chat, yellow-headed blackbird, yellow warbler, Amargosa vole, Mojave River vole, Arizona myotis, cave myotis, fringed myotis, hoary bat, long-eared myotispocketed free-tailed bat, spotted bat, western mastiff bat, western yellow bat, Yuma myotis, Ash Meadows	1,443,000	3,500	100	0	100	3,700	0.3%

Table IV.7-226
BLM LUPA Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 3

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	gum plant, Inyo County star-tulip, Parish's alkali grass, Parish's phacelia, Amargosa pupfish, Amargosa speckled dace, Amargosa spring snails							
Agriculture/ Rural Land Cover	American peregrine falcon, Bank swallow, loggerhead shrike, long-eared owl, northern harrier, redhead, yellow-headed blackbird, yellow warbler, Arizona myotis, hoary bat, Tehachapi pocket mouse, western mastiff bat, western yellow bat	9,000	500	0	300	100	900	10%

1 Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

2 Solar impacts include ground-mounted distributed generation.

3 Impacts to the dune community, riparian communities, arid west freshwater emergent marsh, and Californian warm temperate marsh/seep would be avoided through implementation of CMAs. Only impacts determined to be unavoidable would occur in these natural communities.

4 This amount assumes the loss of conservation value for all land fragmented by the well fields.

Notes: The natural community classification system is described in Chapter III.7 and follows CDFG 2012. Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. Totals may not sum due to rounding. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Impact BR-5: Siting, construction, decommissioning, and operational activities could result in loss of nesting birds (violation of the federal Migratory Bird Treaty Act and California Fish and Game Code Sections 3503, 3503.5, 3511, and 3513).

Siting, construction, decommissioning, and operations of renewable energy and transmission projects would result in the removal of vegetation and other nesting habitat and cause increased human presence and noise that has the potential to cause the loss of nesting birds, which would be a violation of the federal Migratory Bird Treaty Act. The potential loss of nesting birds resulting from these activities would be adverse without application of CMAs. Avoidance and minimization CMAs (AM-PW-4, 13, 14; AM-DFA-RIPWET-1, 3, 5; AM-DFA-AG-1 through 6; AM-DFA-ICS CMAs for bird species) include the season restrictions, survey requirements, and setbacks necessary to avoid and minimize the loss of nesting birds.

Impact BR-6: Siting, construction, decommissioning, and operational activities would adversely affect habitat linkages and wildlife movement corridors, the movement of fish, and native wildlife nursery sites.

Species-specific habitat linkages and wildlife movement areas are a component of analysis conducted under Impact BR-4 above. Suitable habitat for each species includes areas of habitat linkages and wildlife movement. Analysis under BR-4 specifically incorporates habitat linkage information for desert tortoise, Mohave ground squirrel, and desert bighorn sheep. In addition to the species-specific analysis of impacts to suitable habitat supporting habitat linkages and wildlife movement for species, landscape level information on habitat linkages (i.e., Desert Linkage Network) and migratory bird movement are analyzed below.

Desert Linkage Network

Table IV.7-227 shows the impact analysis for the desert linkage network for Alternative 3 for the BLM LUPA. Overall, over 9,000 acres of desert linkage network could be adversely impacted in DFAs and transmission corridors in seven different subareas. In the Cadiz Valley and Chocolate Mountains subarea, DFAs are located in the portion of the desert linkage network that connects the Colorado River to the northern part of the McCoy Mountains. There are also DFAs in the linkage network that extends along the McCoy Mountains and connects south to the Palo Verde Mesa. There are also DFAs in linkages in the Chuckwalla Valley that extend west and south. In the Imperial Borrego Valley, there are DFAs in the northern portion of the desert linkage network that extends along East Mesa. In the Mojave and Silurian Valley, there are DFAs in the Mojave Valley in a linkage that connects the area east of Barstow north to the Superior Valley. In the Owens River Valley, there are DFAs in the desert linkage network that connects the Haiwee Reservoir to Indian Wells. In the Panamint Death Valley there is a DFA in the Searles Valley in a linkage that connects the Argus and Searles Ranges. In the Pinto Lucerne Valley and Eastern Slopes

subarea, there are DFAs in the desert linkage network that connects the Grapevine Canyon Recreation Lands to the Granite Mountains and the Ord Mountains. There are also DFAs in the linkage that connects Quartzite Mountain to the Mojave River. In the West Mojave and Eastern Slopes subarea, there are DFAs in the linkage that connects the area around Baldy Mesa along the southern edge of the Plan Area to Helendale. DFAs also occur in the Brisbane Valley and in the linkages around Barstow. Farther west in the Plan Area, there are DFAs in the linkages that connect Fremont Valley and Soledad Mountain to the Tehachapi Mountains.

To avoid and minimize impacts to the desert linkage network beyond what is presented in Table IV.7-227, Covered Activities will be sited and designed to maintain the function of wildlife connectivity in the following linkage and connectivity areas: (1) across Interstate 10 centered on Wiley's Well Road to connect the Mule and McCoy mountains, (2) across Interstate 10 to connect the Chuckwalla and Palen mountains, (3) across Interstate 10 to connect the Chuckwalla Mountains to the Chuckwalla Valley east of Desert Center, and (4) the confluence of Milpitas Wash and Colorado River floodplain. In addition, the Riparian and Wetland Natural Communities and Covered Species CMAs will contribute to maintaining and promoting habitat connectivity and wildlife movement.

Table IV.7-227
BLM LUPA Impact Analysis for the Desert Linkage Network – Alternative 3

Desert Linkage Network by Ecoregion Subarea	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Cadiz Valley and Chocolate Mountains	709,000	3,000	100	-	3,000	6,000
Imperial Borrego Valley	146,000	100	-	70	60	200
Kingston and Funeral Mountains	138,000	-	-	-	-	-
Mojave and Silurian Valley	368,000	200	-	-	300	400
Owens River Valley	15,000	200	-	200	100	600
Panamint Death Valley	112,000	80	-	-	-	80
Pinto Lucerne Valley and Eastern Slopes	168,000	500	50	-	700	1,000
Piute Valley and Sacramento Mountains	111,000	-	-	-	-	-
Providence and Bullion Mountains	377,000	-	-	-	-	-

Table IV.7-227
BLM LUPA Impact Analysis for the Desert Linkage Network – Alternative 3

Desert Linkage Network by Ecoregion Subarea	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
West Mojave and Eastern Slopes	386,000	600	10	-	200	800
Total	**2,530,000**	**11,000**	**900**	**300**	**8,000**	**21,000**

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
[2] Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Migratory Birds

Migration patterns and the potential impacts of different technologies are discussed, in the typical impacts section (Section IV.7.2.1.3), with direct habitat loss quantified in BR-4, and operational impacts quantified in BR-10. The following analysis focuses on the anticipated distribution of different technology types in relation to known migratory corridors, and migratory resources in each subarea.

In Alternative 3 wind generation is a small proportion of the overall generation mix. Impacts from wind generation would mostly occur in the Pinto Lucerne Valley, and Cadiz and Chocolate Mountain Subareas, with very small quantities in other subareas. Wind development would also occur in the Cadiz and Chocolate Mountains subarea to the north west of Blythe in the McCoy wash area, and north of the I-10. Key bird migration areas affected include Migratory corridor between the Colorado River and the Coachella Valley.

Solar development would be constructed throughout the West Mojave and Eastern slopes, Pinto Lucerne Valley, Cadiz and Chocolate Mountain subareas, but would be mostly focused in Imperial Borrego Valley subarea. Alternative 3 would result in new solar PV and solar thermal generation facilities in the BLM SEZ along the I-10 corridor to the west side of the Colorado River. This may give the appearance of a string of lakes on known migratory linkages for birds between the Colorado River and Coachella Valley. Similarly, development in the West Mojave and Eastern slopes, Pinto Lucerne Valley would occur in DFAs between the passes of the Tehachapi and San Bernardino Mountains, and dry lakes on Edwards AFB, as well as, the North Mojave dry lakes of China Lake, Koehn Lake, Harper Lake and Searles

Lake. Development, around the Salton Sea and in the Imperial Valley, would be on the west side of the East Mesa ACEC, and include areas to the west of the Salton Sea that include the Truckhaven geothermal resource area and areas to the east of the Salton Sea in the foothills of the Chocolate Mountains.

Application of CMAs would require projects to be sited and designed to avoid impacts to occupied habitat and suitable habitat for Covered Species to the maximum extent feasible. A bird and bat use and mortality monitoring program would be implemented during operations Further, proposed projects that are likely to impact bird and bat Covered Species during operation would develop and implement a project-specific Bird and Bat Covered Species Operational Actions that meets the approval of the appropriate DRECP Coordination Group. The goal of the project-specific Bird and Bat Covered Species Operational Actions would be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind solar and geothermal projects. CMAs would negate direct loss of riparian and wetlands habitats, result in no directly loss of riparian and wetland a habitats. Further, implementation of species specific CMAs would ensure impacts to bird species would be reduced and compensation CMAs would offset habitat loss for these species. The compensation requirements in the Bird and Bat Covered Species Operational Actions would be based on ongoing/annual fees and the biological basis for the fee would be determined by the mortality effects as annually measured and monitored according to the Bird and Bat Covered Species Operational Actions. Application of CMAs would reduce the overall impacts to migratory bird populations.

Impact BR-7: Siting, construction, decommissioning, and operational activities would result in habitat fragmentation and isolation of populations of listed and sensitive plants and wildlife.

As discussed in the Plan-wide analysis, the construction and operation of renewable energy and transmission projects can have the potential to fragment intact and interconnected landscapes resulting in isolated patches of habitat, isolated species populations, reduced gene flow, and remaining habitat that is more exposed to the edge effects of adjacent developments. The DRECP integrated planning process, as described in Volume II, avoids and minimizes this impact through the siting of DFAs and through the reserve design. In order to minimize habitat fragmentation and population isolation, DFAs were sited in less intact and more degraded areas. Measures of fragmentation and population isolation effects include the amount of impacts on environmental gradients such as elevation, landforms, slope, and aspect. The impacts to these four environmental gradients under Alternative 3 within DFAs under the GCP would follow the same overall pattern as Plan-wide impacts (AM-LL-1 through AM-LL-4).

Impact BR-8: Construction of generation facilities or transmission lines would result in increased predation of listed and sensitive wildlife species.

Higher predator densities and hence high predation rates are a documented effect of increased human development in the Plan Area. The extent to which Covered Activities contribute to increasing predation through phenomena like predator subsidization is linked to the likely extent of Covered Activities in undisturbed parts of desert.

Agricultural landscapes in the west Mojave, Lucerne Valley and Imperial Borrego Valley or surrounding Blythe are already disturbed, with relatively high levels of human activity that supplement predators such as ravens and coyotes, and support covered predator species such as burrowing owls and Swainson's hawk. Therefore, covered operational activities in already disturbed rural and agricultural landscapes are would result in a little increase in predation.

However, Covered Activities in undisturbed desert habitat are likely to disproportionately supplement predators, increase predator density and consequently increase predation rates on Covered Species. Alternative 3 would result in approximately 46,000 acres of long-term conversion of natural desert communities with approximately 3,000 acres of impacts (6% of the total ground disturbance) within areas characterized by disturbed land cover types. 35% of impacts leading to increased predation would occur in Imperial Borrego Valley, with 25% in Cadiz and Chocolate Mountains, 11% in the West Mojave and Eastern Slopes, and a further 12% in Pinto and Lucerne Valley subareas. The remaining 15% would be spread across BLM DFAs in other subareas.

Most impacts associated with BLM managed DFAs would occur in natural desert communities. Impacts in Imperial Borrego Valley, would occur on the west side of the East Mesa ACEC, in areas to the west of the Salton Sea that include the Truckhaven geothermal resource area and in areas to the east of the Salton Sea in the foothills of the Chocolate Mountains. Development in the Cadiz and Chocolate Mountains would be expected in the BLM Solar SEZ area adjacent to the I-10 corridor. This area may already experience increased predator densities as a consequence of human development, the additional impact of further development would therefore be attenuated. However, development in more remote parts to the subarea would likely increase predation. Susceptible species would include desert tortoise, flat-tailed horned lizard and nesting birds.

Wind and solar development in the West Mojave and Eastern Slopes subarea may supplement predators in undisturbed environments including parts of the Tehachapi Mountains or areas to the north of Edwards AFB. In these areas, susceptible species would include nestlings and eggs of Covered Species like golden eagle and Swainson's hawk, reptiles like the desert tortoise, and mammals like the Mohave ground squirrel. Impacts in Pinto Lucerne Valley and Eastern Slopes subareas would impact golden eagle and desert tortoise.

Application of a Common Raven management plan (AM-PW-6), approved by the appropriate DRECP Coordination Group would reduce project activities that increase predator subsidization. Including, removal of trash and organic waste; minimize introduction of new water sources including pooling of water from dust control; removal of carcasses from bird and bat collisions; and reduction in new nesting and perching sites where feasible.

The level of impact on Non-Covered Species would be similar to that discussed for the Covered Species.

Impact BR-9: Operational activities would result in avian and bat injury and mortality from collisions, thermal flux or electrocution at generation and transmission facilities.

The impacts of operation activities on avian and bat injury and mortality are analyzed below for wind turbines, solar, and transmission.

Wind Turbine

This section summarizes wind turbine operational impacts to bird and bat species within BLM managed DFAs. The range of collision rates calculated in Table IV.7-228 are indicative of the overall annual collision rates for all bird and bat species, not just Covered Species. The range of collision rates is estimated for the final full build-out of wind over the life of the Plan, and is based on the range of collision rates in existing published and gray literature. While it is possible to provide a range of possible collision rates, it is not feasible to estimate the collision rate for each Covered Species, but only infer the propensity for a species to be at risk of collision from its expected distribution and life history of the birds in the Plan Area.

Overall, Alternative 3 would result in a median of 900 collisions per year for birds and 4,000 collisions per year for bats across the BLM LUPA DFAs. The expected distribution of wind generation indicates that 45% of all collisions in DFAs on BLM lands would occur in the Cadiz Valley and Chocolate Mountains subarea and 44% of collision, would occur in the Pinto Lucerne Valley and Eastern Slopes subarea, 11 % spread between Imperial Borrego Valley and West Mojave and Eastern Slopes subareas. Susceptible avian species in Cadiz and Chocolate Mountains would include riparian and wetland birds like the western yellow-billed cuckoo, Yuma clapper rail and the southwest willow flycatcher, as well as resident species like burrowing owl and golden eagle, and wintering species like the mountain plover, and great sandhill crane. Susceptible species in Pinto Lucerne Valley include golden eagle and Bendire's thrasher. Pallid bat, Townsend's big eared bat and California leaf-nosed bat would all be susceptible to collision across most of the BLM LUPA DFAs.

Pre-construction CMAs require habitat assessments and pre-construction surveys for covered riparian and wetland birds, burrowing owl, greater sandhill crane, Swainson's hawk, Bendire's thrasher, golden eagle Covered Species.

Application of siting CMAs would avoid or minimize the risk to species localities. Setbacks from active nests would be required for Bendire's thrasher, California condor, Gila woodpecker, and golden eagle. In addition, projects would be sited and designed to avoid impacts to occupied and suitable habitat for Covered Species to the maximum extent feasible. Implementation of bat specific CMAs include 0.5-mile setbacks from all bat maternity roosts and 5% disturbance caps on desert scrub and woodland habitats in the vicinity of occupied pallid bat and Townsend's big-eared bat roosts would reduce impacts to bat Covered Species.

Applicants would develop and implement a project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meets the approval of the appropriate DRECP Coordination Group. The goal of the project-specific Bird and Bat Covered Species Operational Actions will be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar, geothermal, or transmission project. A bird and bat use and mortality monitoring program will be implemented during operations using current protocols and best procedures available at time of monitoring. Further, the compensation requirements in the Bird and Bat Covered Species Operational Actions would be based on ongoing/annual fees and the biological basis for the fee will be determined by the mortality effects as annually measured and monitored according to the Bird and Bat Covered Species Operational Actions.

Similarly, a Condor Operations Strategy (COS) would be developed on a project-specific basis with the goal of avoiding mortality from operations of wind, solar and geothermal projects. No take for condors will be will be permitted in the form of kill from project operations. Any actions taken to encourage condors to leave an area that might result in harassment, injury, or mortality to the bird will be conducted by a Designated Biologist.

Table IV.7-228
BLM LUPA Estimated Range of Bird and Bat Collisions per Year for Birds and Bats by Subarea – Alternative 3

Ecoregion Subarea	# Turbines	Birds (Collisions/Yr)[1]			Bats (Collisions/Yr)[1]		
		Low	*Median*	*High*	*Low*	*Median*	*High*
Cadiz Valley and Chocolate Mountains	73	100	400	1,000	100	2,000	10,000
Imperial Borrego Valley	5	-	-	100	-	100	700
Kingston and Funeral Mountains	0	-	-	-	-	-	-

Table IV.7-228
BLM LUPA Estimated Range of Bird and Bat Collisions per Year for Birds and Bats by Subarea – Alternative 3

Ecoregion Subarea	# Turbines	Birds (Collisions/Yr)[1]			Bats (Collisions/Yr)[1]		
		Low	*Median*	*High*	*Low*	*Median*	*High*
Mojave and Silurian Valley	0	-	-	-	-	-	-
Owens River Valley	0	-	-	-	-	-	-
Panamint Death Valley	0	-	-	-	-	-	-
Pinto Lucerne Valley and Eastern Slopes	72	100	400	1,000	100	2,000	10,000
Piute Valley and Sacramento Mountains	0	-	-	-	-	-	-
Providence and Bullion Mountains	0	-	-	-	-	-	-
West Mojave and Eastern Slopes	13	-	100	300	-	300	2,000
Grand Total	**164**	**200**	**900**	**3,000**	**200**	**4,000**	**23,000**

[1] Method for estimation of annual bird and bat collision rates described in Section IV.7.1.1.2 and discussed in more detail in Section IV.7.2.1.3.

Note: The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table

Solar

Under the Alternative 3, impacts to avian and bat species from solar development based on the planned solar capacity. BLM administered DFAs would see a 3-fold increase in collision risks relative to baseline. 28% of the collision risks would occur in the Cadiz and Chocolate Mountains, with, 36% in Imperial Borrego Valley, 14% in West Mojave and Eastern Slopes, 9% in Pinto Lucerne Valley, and the remaining 14 % spread across the rest of the plan area.

The development in the Cadiz and Chocolate Mountains subarea would occur in the solar PEIS SEZ adjacent to the I-10 corridor, and in the McCoy Wash. Species impacted by Covered Activities include Bendire's thrasher, burrowing owl, golden eagle, greater sandhill crane, and mountain plover. Anticipated impacts in Imperial Borrego Valley would occur in three BLM managed areas: the western foothills of the Chocolate Mountains; land along the western edge of East Mesa ACEC; and in BLM managed lands on the west side of the Salton Sea species. Birds and bats at risk from solar impacts include burrowing owl, California black rail, Gila woodpecker, golden eagle, greater sandhill crane, mountain plover, southwestern willow flycatcher, Swainson's hawk, and Yuma clapper rail, pallid bat, California leaf-nosed

bat, Townsend's big-eared bat. Development in the West Mojave and Eastern Slopes subareas would occur in the Tehachapi Mountains and areas to the north of Edwards AFB. In these areas, susceptible species would include tricolored blackbird, golden eagle, mountain plover, Bendire's thrasher, Burrowing owls and Swainson's hawk, as well as pallid bat, California leaf-nosed bat, Townsend's big-eared bat. Development in Pinto and Lucerne would mainly affect golden eagle and Bendire's thrasher.

To offset potential impacts, the application of CMAs would require projects to be sited and designed to avoid impacts to occupied and suitable habitat for Covered Species, to the maximum extent feasible. Further, siting and construction CMAs require setbacks from riparian and wetland habitats which would minimize direct loss of important migratory bird habitat. Compensation CMAs would offset habitat loss for Covered Species. A bird and bat use and mortality monitoring program would be implemented during operations. Any proposed projects that are likely to impact bird and bat Covered Species during operation would develop and implement project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meet the approval of the appropriate DRECP Coordination Group. The goal of the project-specific Bird and Bat Covered Species Operational Actions would be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar and geothermal projects. The compensation requirements of AM-LL-4 would be based on ongoing/annual fees and the biological basis for the fee would be determined by the mortality effects as annually measured and monitored according to AM-LL-4. In combination, the application of siting, monitoring, operational and compensation CMAs would minimize impacts to resident and migratory birds.

Bat mortality from solar facilities may occur because of collision or solar flux injury. No DFAs are known to be specifically sensitive areas for bat foraging, and implementation of bat specific CMAs include 500 feet setbacks from all bat maternity roosts and 5% disturbance caps on desert scrub and woodland habitats in the vicinity of occupied pallid bat and Townsend's big-eared bat roosts would reduce impacts to bat Covered Species. Further, the development of Bird and Bat Covered Species Operational Actions (AM-LL-4) as discussed above would greatly reduce the risk to bat populations. Consequently, application of CMAs would reduce the overall impacts to bat populations.

Transmission

The transmission collision and electrocution impacts would occur from generation tie lines (collector lines), new substations, and major transmission lines (delivery lines) that deliver power to major load centers. The distribution of impacts from collector lines would mostly occur within DFAs and be similar in distribution to the generation facilities. Most of the affected areas would be in Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley and the Pinto Lucerne Valley and Eastern Slopes, with 5,000 acres, 3,000 acres, and 2,000

acres of terrestrial impacts anticipated respectively. The remaining 2,000 acres of terrestrial impacts would be spread throughout the remaining subareas.

Both large transmission lines and the network of smaller gen-tie lines would present collision and electrocution hazard to covered bird species. In particular, lines running perpendicular to migratory corridors, and/or close to bird refuges would represent a greater hazard. Such lines include those anticipated to run parallel to the Tehachapi Mountains and those that would cross the Tehachapi mountain passes, which would represent additional risk to migrating and overwintering birds. Golden eagle would be particularly susceptible to lines in both the Pinto Lucerne Valley and Eastern Slopes, and the Mojave and Silurian Valley subareas, as there are numerous territories in these areas. Other areas would include impacts from anticipated delivery lines in Chuckwalla Valley that would run parallel to I-10 corridor in the designated BLM/368 transmission corridors. In the Imperial Borrego Valley subarea, lines would run along the along the eastern side of Salton Sea in existing transmission corridors that are parallel to the foothills of the Chocolate Mountains. Furthermore, collector lines would run along the western side of the Salton Sea from the Truckhaven geothermal resource areas. All these lines would represent additional risk to migrating and overwintering covered avian species, due to their location, especially in bad weather when flocks of migratory birds may be forced down.

All covered bird species may be impacted by additional transmission infrastructure. To ameliorate potential hazards, transmission projects would reduce impacts to Covered Species by implementing Plan-wide, landscape-level, natural community, and Covered Species CMAs where feasible, as discussed under the wind impacts section.

Applicants would develop and implement a project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meets the approval of the appropriate DRECP Coordination Group. The goal of the project-specific Bird and Bat Covered Species Operational Actions will be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar, geothermal, or transmission project. A bird and bat use and mortality monitoring program will be implemented during operations using current protocols and best procedures available at time of monitoring. Further, the compensation requirements in the Bird and Bat Covered Species Operational Actions would be based on ongoing/annual fees and the mortality effects as annually measured and monitored according to the Bird and Bat Covered Species Operational Actions will determine the biological basis for the fee.

In addition, transmission projects would implement transmission specific CMAs that would: where feasible, bury electrical collector lines along roads (AM-TRANS-1); fit flight diverters on all transmission projects spanning or within 1,000 feet of water bodies and watercourses (AM-TRANS-2); avoid siting transmission projects that span canyons or are

located on ridgelines (AM-TRANS-3); restrict transmission projects to within designated utility corridors (AM-TRANS-4). With the implementation of CMAs impacts to Covered Species would minimized.

The level of impact on Non-Covered Species would be similar to that discussed for the Covered Species.

Operational Impacts Take Estimates for Covered Avian and Bat Species

The following section summaries the initial estimates for take of Covered Species by operational activities that would require compensatory mitigation. Take estimates integrate all sources of mortality for each technology discussed above.

Table IV.7-229
BLM LUPA Estimated Total Take for Covered Avian and Bat Species – Alternative 3

Covered Bird and Bat Species	Solar Impact	Wind Impact	Geothermal Impact	Total Impact
Bendire's thrasher	20	0	0	20
Burrowing owl	40	10	10	60
California condor[1]	0	0	0	0
California black rail	10	0	0	10
Gila woodpecker	10	0	0	10
Golden eagle[2]	n/a	n/a	n/a	n/a
Least Bell's vireo	30	0	0	30
Mountain plover	30	10	10	50
Greater sandhill crane	0	0	0	0
Southwestern willow flycatcher	20	0	0	20
Swainson's hawk	20	0	0	20
Tricolored blackbird	20	0	0	20
Western yellow billed cuckoo	10	0	0	10
Yuma clapper rail	10	0	0	10
Grand Total Avian Species	**220**	**20**	**20**	**260**
California leaf-nosed bat	10	10	0	20
Pallid bat	0	10	0	10
Townsend's big-eared bat	10	0	0	10
Grand Total Bat Species	**20**	**20**	**0**	**40**

1 Take for California condor would not be permitted under the DRECP.

2 Take of Golden Eagle would be permitted on a project by project basis. Based on the 2013 analysis, no more than 15 golden eagles per year would be authorized for 2014 for any new activity within the Plan Area. Take limits for the DRECP area will be re-evaluated annually based on the amount of ongoing take and population estimates of eagles within the local-area population of eagles.

Note: The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the

nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table

IV.7.3.5.2.2 Impacts of Changes to BLM Land Designations

The BLM LUPA would establish conservation designations on BLM-administered lands under each alternative that would conserve biological resources, including NLCS, ACEC, and wildlife allocations. On BLM-administered lands under Alternative 3, the BLM LUPA would designate approximately 5,023,000 acres of BLM LUPA conservation designations, including 3,380,000 acres of NLCS, 1,630,000 acres of ACEC, and 13,000 acres of wildlife allocation. Additionally, existing conservation areas occur on BLM-administered lands that conserve biological resources. Appendix L provides unit-specific ACEC and NLCS worksheets that identify relevant resources, specific resources goals, objectives, and prescribed management actions. The following provides an analysis of the conservation that would be provided in these BLM LUPA conservation designations, organized by landscape, natural communities, and species.

The BLM LUPA would also establish Special Recreation Management Areas (SRMAs) and would identify lands to be managed to protect Wilderness Characteristics. These BLM LUPA land designations are overlays that specify particular management and uses for specific areas. Unit-specific SRMA worksheets are provided in Appendix L and the CMAs specific to lands managed to protect Wilderness Characteristics are provided as part of the Volume II descriptions of the DRECP alternatives. These land designations may co-occur with the BLM LUPA conservation designations (NLCS, ACECs, and wildlife allocations). Where these land designations do no co-occur with the BLM LUPA conservation designations, they were not included as part of the reserve design envelope and were not included in the conservation analysis for biological resources provided in this section.

Landscape

Habitat Linkages

Desert Linkage Network

Table IV.7-230 shows the conservation of the desert linkage network under Alternative 3 for the BLM LUPA. Conservation of the desert linkage network totals more than 2.6 million acres (72%). None of the linkages in the Cadiz Valley and Chocolate Mountains subarea are entirely conserved under the BLM LUPA. In the Imperial Borrego Valley, the connection that extends into the Cadiz Valley and Chocolate Mountains subarea only includes small disjunct areas that are not conserved. The remaining linkage along East Mesa is partly conserved. The connectivity in the linkages in the Kingston and Funeral Mountains subarea along Shadow Valley, between Halloran Springs and the Shadow

Mountains, and west into the Silurian Valley are maintained with most of these areas in conservation. None of the linkages in the Mojave and Silurian Valley subarea are entirely conserved since the middle portion of the subarea is not in Reserve Lands. Portions of the single linkage in the Owens River Valley subarea are not conserved. The connectivity of the northernmost linkage in the Panamint Death Valley subarea along the Searles Range is conserved. The connection in the China Lake Naval Weapon Center is not conserved in Reserve Lands, but most of the remainder of this linkage to the west is conserved. Most of the linkage in the eastern portion of the subarea is not in Reserve Lands. In the Pinto Lucerne Valley and Eastern Slopes subarea, none of the linkages are completely conserved. Only the linkages along the eastern boundary of the Piute Valley and Sacramento Mountains subarea and pockets of the remaining linkages would not be in Reserve Lands. All of the linkages in the Providence and Bullion Mountains subarea would be largely maintained in Reserve Lands. In the West Mojave and Eastern Slopes subarea. although large portions of the other linkages in this subarea conserved, none of them are wholly conserved in Reserve Lands.

In addition to conservation of the desert linkage network, CMAs provide for the avoidance and minimization of certain linkages in the DFAs (see Section IV.7.3.5.2.1).

Table IV.7-230
BLM LUPA Conservation Analysis for the Desert Linkage Network – Alternative 3

Desert Linkage Network by Ecoregion Subarea	Available Lands (acres)	Existing Conservation[1] (acres)	NLCS (acres)[2]	ACEC (acres)	Wildlife Allocation (acres)	Total Conservation (acres)	% of Available Lands
Cadiz Valley and Chocolate Mountains	890,000	187,000	356,000	149,000	-	699,000	78%
Imperial Borrego Valley	156,000	14,000	106,000	900	-	121,000	78%
Kingston and Funeral Mountains	174,000	28,000	81,000	32,000	-	142,000	82%
Mojave and Silurian Valley	507,000	179,000	53,000	150,000	-	388,000	76%
Owens River Valley	19,000	40	12,000	-	-	12,000	63%
Panamint Death Valley	206,000	109,000	38,000	38,000	-	185,000	90%
Pinto Lucerne Valley and Eastern Slopes	291,000	16,000	47,000	87,000	-	153,000	52%

Table IV.7-230
BLM LUPA Conservation Analysis for the Desert Linkage Network – Alternative 3

Desert Linkage Network by Ecoregion Subarea	Available Lands (acres)	Existing Conservation[1] (acres)	NLCS (acres)[2]	ACEC (acres)	Wildlife Allocation (acres)	Total Conservation (acres)	% of Available Lands
Piute Valley and Sacramento Mountains	152,000	14,000	93,000	1,000	-	110,000	72%
Providence and Bullion Mountains	426,000	144,000	165,000	54,000	-	365,000	86%
West Mojave and Eastern Slopes	860,000	45,000	92,000	280,000	3,000	471,000	55%
Grand Total	**3,682,000**	**736,000**	**790,000**	**806,000**	**10,000**	**2,419,000**	**66%**

1 Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on BLM-administered land
2 Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), on BLM-administered land

Notes: Conservation acreages reported for Existing Conservation and BLM LUPA conservation designations reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Overlaps of ACECs or Wildlife Allocations with NLCS designations are reported as NLCS designations. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Hydrological Resources

A conservation analysis for hydrological resources is provided below, including playa, seep/spring, and the four major rivers in the Plan Area (i.e., Amargosa, Colorado, Mojave and Owens) for Alternative 3 on BLM land. Conservation of riparian areas and wetlands, which co-occur with many of these hydrological resources is provided below under Natural Communities.

Playa

Playa totals approximately 163,000 acres in the Plan Area. Overall, 58% (94,000 acres) would be conserved under Alternative 3 on BLM land. Existing Conservation would account for 11% of the conservation, NLCSs would account for 37%, and ACECs would account for 52%. Additionally, playas and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks. CMAs for playas would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided riparian or wetland natural communities.

Seep/Spring

There are 176 seep/spring locations in the Plan Area under Alternative 3 on BLM land. Overall, 78% (137 locations) of the seep/spring locations would be conserved under Alternative 3 on BLM land. The conservation of seep/spring under Alternative 3 on BLM land would be above half in all subareas except in the Imperial Borrego Valley location (33%, 1 location). These include Cadiz Valley and Chocolate Mountains (100%, 5 locations), Kingston and Funeral Mountains (67%, 20 locations), Mojave and Silurian Valley (86%, 9 locations), Owens River Valley (57%, 6 locations), Panamint Death Valley (87%, 10 locations), Piute Valley and Sacramento Mountains (89%, 14 locations), Pinto Lucerne Valley and Eastern Slopes (76%, 29 locations), Providence and Bullion Mountains (95%, 18 locations), and West Mojave and Eastern Slopes (77%, 25 locations).

Overall, Existing Conservation would account for 39% of the conservation of seep/spring, NCLSs would account for 44%, ACECs would account for 16%, and wildlife allocations would account for 1%. Additionally, seeps and springs and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks. CMAs for seep/spring locations would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided wetland natural communities.

Major Rivers

Overall, 87% of the major rivers would be conserved under Alternative 3 on BLM land, including 90% of the Amargosa River and 81% of the Mojave River. Existing Conservation would account for 40%, NLCSs would account for 45%, and ACECs would account for 15%. Additionally, major rivers and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks.

Dune and Sand Resources

Overall, 81% (797,000 acres) of dunes and sand resources would be conserved under Alternative 3 on BLM land. At least 50% of dunes and sand resources would be conserved in all subareas that contain substantial acreage of dunes and sand resources in the Plan Area except for in the Pinto Lucerne Valley and Eastern Slope at 48% (9,000 acres). These subareas include Cadiz Valley and Chocolate Mountains at 91% (479,000 acres), Imperial Borrego Valley at 67% (79,000 acres), Kingston and Funeral Mountains at 65% (29,000 acres), Mojave and Silurian Valley at 78% (33,000 acres), Owens River Valley at 87% (4,000 acres), Panamint and Death Valley at 54% (17,000 acres), Providence and Bullion Mountains at 76% (142,000 acres), and the West Mojave and Eastern Slopes at 79% (7,000

acres. Dunes and sand resources and associated Covered Species, natural communities and ecological functions would be avoided through application of the dune avoidance and minimization CMAs.

Environmental Gradients

The conservation analysis addresses four types of environmental gradients in the Plan Area: elevation, landforms, slope, and aspect. The conservation of these four environmental gradients under Alternative 3 within DFAs on BLM Land would follow the same overall pattern as Plan-wide conservation.

Natural Communities

Table IV.7-231 shows the conservation to natural communities within the reserve design. A conservation summary by general community is provided below. Appendix R2 provides a detailed analysis of natural community conservation by ecoregion subarea.

California forest and woodlands

Overall, approximately 38,000 acres (86%) of California forest and woodlands would be conserved under Alternative 3 on BLM Lands. The majority of conservation would occur in the West Mojave and Eastern Slopes and Pinto Lucerne Valley and Eastern Slopes subareas and approximately 10 acres would be conserved in the Owens River Valley subarea. Conservation would primarily come from BLM LUPA conservation designations. In addition to conservation of California forest and woodlands, CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 11,000 acres (62%) of chaparral and coastal scrubs would be conserved under Alternative 3 on BLM Lands. The majority of conservation would occur in the Pinto Lucerne Valley and Eastern Slopes subarea. There is more conservation in BLM LUPA conservation designations than in existing conservation. In addition to conservation of chaparral and coastal scrubs, CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert conifer woodlands

Overall, approximately 41,000 acres (82%) of desert conifer woodlands would be conserved under Alternative 3 on BLM Lands. The majority of conservation would occur

in the Pinto Lucerne Valley and Eastern Slopes, West Mojave and Eastern Slopes, and Kingston and Funeral Mountains subareas. Conservation of this general community would primarily come from existing conservation. In addition to conservation of desert conifer woodlands, CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert outcrop and badlands

Overall, approximately 1,020,000 acres (85%) of desert outcrop and badlands would be conserved under Alternative 3 on BLM Lands. The majority of the conservation would occur in the Cadiz Valley and Chocolate Mountains and Piute Valley and Sacramento Mountains subareas. Most (approximately 566,000 acres) of the total conservation of desert outcrop and badlands are in areas of existing conservation. In addition to conservation of desert outcrop and badlands, CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert scrubs

Overall, approximately 5,917,000 acres (84%) of desert scrubs would be conserved under Alternative 3 on BLM Lands. About half of the conserved acreage would occur in the Kingston and Funeral Mountains, Providence and Bullion Mountains, and Cadiz Valley and Chocolate Mountains subareas. However, conservation of desert scrubs is well distributed with conservation in every subarea of the Plan Area. As the most prevalent desert scrub natural community in the Plan Area, lower bajada and fan Mojavean–Sonoran desert scrub accounts for the majority of the conservation of desert scrub communities. The majority of the total conservation of desert scrubs would be in existing conservation areas or NLCSs. In addition to conservation of desert scrubs, CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Dunes

Overall, approximately 96,000 acres (75%) of dunes would be conserved under Alternative 3 on BLM Lands. The majority of the conserved acreage would occur in the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, and Kingston and Funeral Mountains subareas. The remaining conserved acreage is distributed throughout the remaining subareas. The majority of the total conservation of desert dunes would be in NLCSs. In addition to conservation of desert dunes, application of the CMAs would require that dune communities be avoided to the maximum extent feasible in DFAs. In

addition, CMA application would prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

Grasslands

Overall, approximately 24,000 acres (84%) of grasslands would be conserved under Alternative 3 on BLM Lands. The majority of the conserved acreage would occur in the Pinto Lucerne Valley and Eastern Slopes subarea. As the most prevalent grassland natural community in the Plan Area, California Annual and Perennial Grassland accounts for the vast majority of the conservation of grassland communities. Most of the conserved acreage of grasslands would be in existing conservation. In addition to conservation of grasslands, CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Riparian

Overall, approximately 519,000 acres (80%) of riparian communities would be conserved under Alternative 3 on BLM Lands. The majority of the conserved acreage would occur in the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas. As the most prevalent riparian natural community in the Plan Area, Madrean Warm Semi-Desert Wash Woodland/Scrub accounts for the majority of the conservation of riparian communities. Most of the conservation of riparian communities would occur in NLCSs. In addition to conservation of riparian communities, impacts to riparian communities would not occur under Alternative 3 since application of the CMAs would require that riparian communities be avoided to the maximum extent feasible in DFAs. In addition, setbacks from riparian communities would be required that range from 200 feet for Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub to 0.25 mile for Southwestern North American riparian evergreen and deciduous woodland and Southwestern North American riparian/wash scrub.

Wetlands

Overall, approximately 203,000 acres (68%) of wetland communities would be conserved under Alternative 3 on BLM Lands. About half of the conserved acreage would occur in the Cadiz Valley and Chocolate Mountains and West Mojave and Eastern Slopes subareas with the remaining conserved acreage distributed throughout the remaining subareas. As the most prevalent wetland natural communities in the Plan Area, conservation of North American warm desert alkaline scrub and herb playa and wet flat and Southwestern North American salt basin and high marsh account for the majority of the conservation of riparian communities. Most of the conservation of wetland communities would occur in ACECs. In addition to conservation of

wetland communities, Arid West freshwater emergent marsh and Californian warm temperate marsh/seep would be avoided under Alternative 3 since application of the CMAs would require that these communities be avoided to the maximum extent feasible in DFAs, including a 0.25-mile setback. Also, CMAs for North American warm desert alkaline scrub and herb playa and wet flat, southwestern North American salt basin and high marsh, and other undifferentiated wetland-related land covers (i.e., "Playa", "Wetland", and "Open Water") would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided riparian or wetland natural communities.

Table IV.7-231
BLM LUPA Conservation Analysis for Natural Communities – Alternative 3

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	NLCS (acres)[2]	ACEC (acres)	Wildlife Allocations (acres)	Total Conservation (acres)	% of Available Lands
California forest and woodland							
Californian broadleaf forest and woodland	11,000	600	300	2,000	6,000	9,000	86%
Californian montane conifer forest	34,000	18,000	6,000	3,000	3,000	29,000	86%
Chaparral and coastal scrub community (Cismontane scrub)							
Californian mesic chaparral	500	0	0	30	300	300	57%
Californian pre-montane chaparral	300	0	10	40	200	300	89%
Californian xeric chaparral	5,000	2,000	200	80	400	3,000	59%
Central and south coastal California seral scrub	20	0	0	10	0	10	76%
Central and South Coastal Californian coastal sage scrub	13,000	2,000	2,000	4,000	0	8,000	62%
Western Mojave and Western Sonoran Desert borderland chaparral	200	20	80	0	0	100	50%

Table IV.7-231
BLM LUPA Conservation Analysis for Natural Communities – Alternative 3

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	NLCS (acres)[2]	ACEC (acres)	Wildlife Allocations (acres)	Total Conservation (acres)	% of Available Lands
Desert conifer woodlands							
Great Basin Pinyon - Juniper Woodland	50,000	27,000	11,000	3,000	300	41,000	82%
Desert outcrop and badlands							
North American warm desert bedrock cliff and outcrop	1,203,000	566,000	358,000	96,000	0	1,020,000	85%
Desert Scrub							
Arizonan upland Sonoran desert scrub	3,000	1,000	400	100	0	2,000	63%
Intermontane deep or well-drained soil scrub	69,000	16,000	14,000	33,000	0	63,000	91%
Intermontane seral shrubland	5,000	10	900	2,000	0	3,000	61%
Inter-Mountain Dry Shrubland and Grassland	282,000	86,000	96,000	13,000	10	195,000	69%
Intermountain Mountain Big Sagebrush Shrubland and steppe	24,000	5,000	8,000	2,000	2,000	17,000	70%
Lower Bajada and Fan Mojavean - Sonoran desert scrub	6,114,000	2,003,000	2,101,000	1,104,000	0	5,208,000	85%
Mojave and Great Basin upper bajada and toeslope	406,000	165,000	138,000	52,000	0	355,000	87%
Shadscale - saltbush cool semi-desert scrub	101,000	17,000	42,000	15,000	0	74,000	73%

Table IV.7-231
BLM LUPA Conservation Analysis for Natural Communities – Alternative 3

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	NLCS (acres)[2]	ACEC (acres)	Wildlife Allocations (acres)	Total Conservation (acres)	% of Available Lands
Southern Great Basin semi-desert grassland	50	0	0	40	0	40	82%
Dunes							
North American warm desert dunes and sand flats	127,000	34,000	50,000	12,000	0	96,000	75%
Grassland							
California Annual and Perennial Grassland	28,000	10,000	6,000	8,000	500	24,000	85%
California annual forb/grass vegetation	1,000	0	200	500	0	700	58%
Riparian							
Madrean Warm Semi-Desert Wash Woodland/Scrub	502,000	104,000	244,000	53,000	0	402,000	80%
Mojavean semi-desert wash scrub	11,000	1,000	3,000	6,000	0	9,000	86%
Sonoran-Coloradan semi-desert wash woodland/scrub	122,000	28,000	61,000	13,000	0	102,000	83%
Southwestern North American riparian evergreen and deciduous woodland	400	0	80	100	80	300	72%
Southwestern North American riparian/wash scrub	10,000	600	4,000	1,000	0	6,000	57%
Madrean Warm Semi-Desert Wash Woodland/Scrub	502,000	104,000	244,000	53,000	0	402,000	80%

Table IV.7-231
BLM LUPA Conservation Analysis for Natural Communities – Alternative 3

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	NLCS (acres)[2]	ACEC (acres)	Wildlife Allocations (acres)	Total Conservation (acres)	% of Available Lands
Wetland							
Arid West freshwater emergent marsh	10	0	0	0	0	0	18%
Californian warm temperate marsh/seep	0	0	0	0	0	0	60%
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	147,000	13,000	33,000	37,000	0	84,000	57%
Open Water	700	0	60	50	0	100	18%
Playa	26,000	300	200	24,000	0	25,000	94%
Southwestern North American salt basin and high marsh	122,000	2,000	29,000	63,000	0	94,000	77%
Wetland	100	0	0	10	0	10	4%
Other Land Cover							
Agriculture	6,000	0	800	100	0	900	16%
Developed and Disturbed Areas	44,000	200	1,000	600	10	2,000	4%
Not Mapped	800	0	50	10	0	60	8%
Rural	3,000	0	100	100	0	200	8%
Total	**9,472,000**	**3,101,000**	**3,211,000**	**1,548,000**	**12,000**	**7,872,000**	**83%**

[1] Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on BLM-administered land

[2] Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), on BLM-administered land

Notes: Conservation acreages reported for Existing Conservation and BLM LUPA conservation designations reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Overlaps of ACECs or Wildlife Allocations with NLCS designations are reported as NLCS designations. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Covered Species Habitat

Table IV.7-232 shows the conservation of Covered Species modeled habitat under the Alternative 3 (before the application of CMAs) under the BLM LUPA. Generally, the percent conservation of Covered Species modeled habitat in available lands is highly variable, ranging from 24% for greater sandhill crane to 91% for triple-ribbed milk-vetch.

Much of the modeled habitats for desert tortoise and Mojave fringe-toed lizard are in the Mojave Desert in areas that are either already in Existing Conservation or occur in NLCSs. Flat-tailed horned lizard modeled habitat is mainly conserved in the NLCSs. Tehachapi slender salamander modeled habitat occurs in the Tehachapi Mountains where conservation is primarily composed of wildlife allocations. Furthermore, the siting of the DFAs under Alternative 3 largely avoids habitat for Mojave fringe-toed lizard and Tehachapi slender salamander, and CMAs require avoidance of and setbacks from riparian habitat, wetland habitat, and dune habitat would further avoid and minimize the impacts on these species.

Conservation of bird species associated primarily with wetland and riparian habitats, including California black rail, least Bell's vireo, southwestern willow flycatcher, tricolored blackbird, western yellow-billed cuckoo, and Yuma clapper rail would be augmented by CMAs requiring avoidance of and setbacks from riparian and wetland habitats. Conservation of suitable habitat for Bendire's thrasher is mainly in existing conservation areas and NLCSs. Burrowing owl, widespread, but mainly associated with open areas in the West Mojave and Eastern Slopes and agricultural areas in the Imperial Borrego Valley, would primarily be conserved in ACECs and NLCSs under Alternative 3.

California condor mainly occurs in the West Mojave and Eastern Slopes subarea so the majority of conservation is also in this subarea with most of the conserved acreage in NLCSs. Golden eagle modeled suitable habitat and associated conservation is widespread in the Plan Area with most of the conservation in existing conservation areas and NLCSs. Swainson's hawk is primarily associated with the West Mojave and Eastern Slopes, Imperial Borrego Valley, and Owens River Valley subareas; the majority of suitable habitat conserved is in ACECs. In addition to conservation of suitable habitat, CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs.

Most of the modeled suitable habitat for Gila woodpecker is conserved in the Imperial Borrego Valley in NLCSs. Conservation of mountain plover suitable habitat in BLM LUPA under Alternative 3 is almost entirely within the ACECs and NLCSs.

Conservation of suitable habitat for desert pupfish is mainly in NLCSs. Avoidance and setback provisions for managed wetlands and agricultural drains would conserve wetland and riparian features within the agricultural matrix and provide conservation benefits to desert pupfish. Owens pupfish and Owens tui chub are conserved almost equally between existing conservation areas and NLCSs.

Conservation of suitable habitat for bighorn sheep, both inter-mountain and mountain habitat, is in existing conservation areas, NLCSs and ACECs. The siting of the DFAs under Alternative 3 largely avoid habitat for bighorn sheep. The total percent conservation from BLM LUPA conservation designations for burro deer (84%), desert kit fox (82%), and Mojave ground squirrel (78%) is divided between existing conservation areas, NLCSs, and ACECs. Suitable habitat for the covered bat species—California leaf-nosed bat, pallid bat, and Townsend's big-eared bat—is widespread and mainly conserved in existing conservation areas and NLCSs. In addition to conservation of suitable habitat for covered mammal species, CMAs requiring avoidance of and setbacks from riparian and wetland habitat would reduce impacts on these habitats used by Mohave ground squirrel, California leaf-nosed bat, pallid bat, and Townsend's big-eared bat.

Conservation of plant species ranges from 31% of suitable habitat for Owens Valley checkerbloom to 91% of suitable habitat for triple-ribbed milk-vetch. The proportion of suitable habitat conserved in existing conservation and BLM LUPA conservation designations varies by species. However, in addition to the conservation of modeled suitable habitat, the CMAs requiring surveys for plant Covered Species for all Covered Activities, and the CMAs requiring avoidance of and setbacks from occupied habitat would further reduce the impacts on these species.

In addition to conservation of suitable habitat for Covered Species, compensation CMAs would offset habitat loss for all Covered Species.

Table IV.7-232
BLM LUPA Conservation Analysis for Covered Species Habitat – Alternative 3

Species	Available Lands (acres)	Existing Conservation[1] (acres)	NLCS (acres)[2]	ACEC (acres)	Wildlife Allocation (acres)	Total Conservation (acres)	% of Available Lands
Amphibian/Reptile							
Agassiz's desert tortoise	5,799,000	1,869,000	2,045,000	1,090,000	-	5,004,000	86%
Flat-tailed horned lizard	428,000	36,000	233,000	15,000	-	284,000	66%
Mojave fringe-toed lizard	731,000	214,000	218,000	197,000	-	629,000	86%
Tehachapi slender salamander	7,000	-	700	2,000	4,000	6,000	83%
Bird							
Bendire's thrasher	773,000	266,000	298,000	88,000	-	652,000	84%
Burrowing owl	1,707,000	144,000	612,000	482,000	90	1,239,000	73%
California black rail	31,000	1,000	9,000	2,000	-	12,000	40%
California condor	242,000	37,000	91,000	36,000	12,000	176,000	73%
Gila woodpecker	38,000	700	30,000	400	-	31,000	83%
Golden eagle–foraging	6,216,000	2,539,000	1,979,000	853,000	11,000	5,383,000	87%
Golden eagle–nesting	2,421,000	1,334,000	524,000	253,000	12,000	2,124,000	88%
Greater sandhill crane	3,000	-	700	90	-	700	24%
Least Bell's vireo	69,000	28,000	21,000	8,000	600	57,000	82%
Mountain plover	7,000	80	1,000	1,000	-	2,000	33%
Southwestern willow flycatcher	46,000	5,000	11,000	6,000	2,000	25,000	54%
Swainson's hawk	112,000	6,000	12,000	21,000	-	39,000	35%
Tricolored blackbird	13,000	5,000	2,000	3,000	200	9,000	70%
Western yellow-billed cuckoo	19,000	4,000	3,000	3,000	-	10,000	52%

Table IV.7-232
BLM LUPA Conservation Analysis for Covered Species Habitat – Alternative 3

Species	Available Lands (acres)	Existing Conservation[1] (acres)	NLCS (acres)[2]	ACEC (acres)	Wildlife Allocation (acres)	Total Conservation (acres)	% of Available Lands
Yuma clapper rail	5,000	30	1,000	600	-	2,000	35%
Fish							
Desert pupfish	500	20	300	-	-	300	56%
Owens pupfish	4,000	600	600	60	-	1,000	32%
Owens tui chub	4,000	600	600	50	-	1,000	32%
Mammal							
Bighorn sheep – inter-mountain habitat	2,243,000	785,000	750,000	345,000	500	1,880,000	84%
Bighorn sheep – mountain habitat	3,568,000	1,821,000	1,071,000	273,000	-	3,165,000	89%
California leaf-nosed bat	4,444,000	1,442,000	1,637,000	704,000	-	3,783,000	85%
Mohave ground squirrel	999,000	104,000	162,000	516,000	-	783,000	78%
Pallid bat	8,943,000	3,024,000	3,078,000	1,408,000	12,000	7,522,000	84%
Townsend's big-eared bat	7,599,000	2,330,000	2,595,000	1,355,000	12,000	6,292,000	83%
Plant							
Alkali mariposa-lily	2,000	-	700	-	-	700	45%
Bakersfield cactus	77,000	3,000	41,000	9,000	2,000	55,000	71%
Barstow woolly sunflower	72,000	400	400	63,000	-	64,000	89%
Desert cymopterus	67,000	4,000	1,000	52,000	-	57,000	86%
Little San Bernardino Mountains linanthus	80,000	6,000	35,000	1,000	-	42,000	53%
Mojave monkeyflower	116,000	23,000	58,000	21,000	-	102,000	88%
Mojave tarplant	136,000	29,000	57,000	19,000	2,000	108,000	79%
Owens Valley checkerbloom	55,000	12,000	2,000	2,000	-	17,000	31%

Table IV.7-232
BLM LUPA Conservation Analysis for Covered Species Habitat – Alternative 3

Species	Available Lands (acres)	Existing Conservation[1] (acres)	NLCS (acres)[2]	ACEC (acres)	Wildlife Allocation (acres)	Total Conservation (acres)	% of Available Lands
Parish's daisy	85,000	34,000	30,000	7,000	-	71,000	83%
Triple-ribbed milk-vetch	4,000	4,000	-	-	-	4,000	91%

[1] Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on BLM-administered land

[2] Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), on BLM-administered land

Notes: Conservation acreages reported for Existing Conservation and BLM LUPA conservation designations reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Overlaps of ACECs or Wildlife Allocations with NLCS designations are reported as NLCS designations. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For Agassiz's desert tortoise, desert tortoise important areas were identified that include tortoise conservation areas (TCAs), desert tortoise linkages, and desert tortoise high priority habitat (see desert tortoise BGOs in Appendix C). Table IV.7-233 provides a conservation analysis for these desert tortoise important areas, organized by desert tortoise Recovery Units: Colorado Desert, Eastern Mojave, and Western Mojave. Within the Colorado Desert Recovery Unit, 92% of TCAs, linkage habitat, and high priority habitat would be conserved under Alternative 3. Within the Eastern Mojave Recovery Unit, 92% of the important areas would be conserved Alternative 3. Within the Western Mojave Recovery Unit, 86% of TCAs and linkage habitat would be conserved under Alternative 3. CMAs would require avoidance of TCAs, except for impacts associated with transmission or impacts in disturbed portions of TCAs. Additionally, the CMAs would prohibit impacts that affect the viability of desert tortoise linkages. Compensation CMAs would be required for impacts to desert tortoise, including desert tortoise important areas.

Table IV.7-233
BLM LUPA Conservation Analysis for Desert Tortoise Important Areas – Alternative 3

Recovery Unit	Desert Tortoise Important Areas	Available Lands (acres)	Existing Conservation[1]	NLCS (acres)[2]	ACEC (acres)	Wildlife Allocation (acres)	Total Conservation (acres)	% of Available Lands
Colorado Desert	High Priority Habitat	354,000	156,000	82,000	64,000	-	302,000	85%
	Linkage	406,000	126,000	51,000	201,000	-	377,000	93%
	TCA	1,728,000	454,000	1,095,000	73,000	-	1,622,000	94%
Colorado Desert Total		*2,489,000*	*735,000*	*1,228,000*	*338,000*	-	*2,301,000*	*92%*
Eastern Mojave	Linkage	728,000	418,000	225,000	28,000	-	670,000	92%
	TCA	239,000	56,000	167,000	800	-	224,000	94%
Eastern Mojave Total		*967,000*	*474,000*	*391,000*	*29,000*	-	*894,000*	*92%*
Western Mojave	Linkage	796,000	387,000	154,000	76,000	-	617,000	78%
	TCA	964,000	129,000	240,000	530,000	-	900,000	93%
Western Mojave Total		*1,759,000*	*517,000*	*394,000*	*606,000*	-	*1,517,000*	*86%*
Grand Total		**5,215,000**	**1,726,000**	**2,014,000**	**973,000**	**-**	**4,713,000**	**90%**

[1] Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on BLM-administered land

[2] Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), on BLM-administered land

Notes: Conservation acreages reported for Existing Conservation and BLM LUPA conservation designations reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Overlaps of ACECs or Wildlife Allocations with NLCS designations are reported as NLCS designations. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For Mohave ground squirrel, Mohave ground squirrel important areas were identified that include key population centers, linkages, expansion areas, and climate change extension areas (see Mohave ground squirrel BGOs in Appendix C). Table IV.7-234 provides a conservation analysis for these Mohave ground squirrel important areas. Approximately 88% of key population centers and 74% of linkages would be conserved under Alternative 3. Expansion areas and climate change extension areas would be conserved at 90% and 67% respectively. The CMAs would prohibit impacts that affect the viability of linkages. Compensation CMAs would be required for impacts to Mohave ground squirrel, including Mohave ground squirrel important areas.

Table IV.7-234
BLM LUPA Conservation Analysis for Mohave Ground Squirrel Important Areas – Alternative 3

Mohave Ground Squirrel Important Area Type	Available Lands (acres)	Existing Conservation[1] (acres)	NLCS (acres)[2]	ACEC (acres)	Wildlife Allocation (acres)	Total Conservation (acres)	% of Available Lands
Key Population Center	299,000	18,000	103,000	142,000	-	264,000	88%
Linkage	280,000	24,000	25,000	158,000	-	207,000	74%
Expansion Area	282,000	45,000	46,000	163,000	-	254,000	90%
Climate Change Extension	92,000	14,000	43,000	4,000	-	62,000	67%
Total	**954,000**	**101,000**	**217,000**	**468,000**	**-**	**786,000**	**82%**

1 Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on BLM-administered land

2 Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), on BLM-administered land

Notes: Conservation acreages reported for Existing Conservation and BLM LUPA conservation designations reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Overlaps of ACECs or Wildlife Allocations with NLCS designations are reported as NLCS designations. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Within the Plan Area, critical habitat has been designated by the USFWS for the following Covered Species: desert tortoise, southwestern willow flycatcher, desert pupfish, and Parish's daisy. For desert tortoise, approximately 94% of the desert tortoise designated critical habitat on BLM-administered lands would be conserved under Alternative 3, including 606,000 acres in existing conservation areas and 1,881,000 acres in BLM LUPA conservation designations. For southwestern willow flycatcher, approximately 95% of the southwestern willow flycatcher designated critical habitat on BLM-administered lands

would be conserved in Reserve Design Lands under Alternative 3, including 300 acres in existing conservation areas and 40 acres in BLM LUPA conservation designations. For desert pupfish, approximately 95% of the desert pupfish designated critical habitat on BLM-administered lands would be conserved in Reserve Design Lands under Alternative 3, including 20 acres in existing conservation areas and 400 acres in BLM LUPA conservation designations. For Parish's daisy, approximately 93% of the Parish's daisy designated critical habitat on BLM-administered lands would be conserved in Reserve Design Lands under Alternative 3, including 900 acres in BLM LUPA conservation designations.

Non-Covered Species Critical Habitat

Ten Non-Covered Species have Critical Habitat within BLM LUPA Lands. Table IV.7-235 shows the total amount of Critical Habitat and the amount within each LUPA conservation designation for Non-Covered Species. These conservation designations are considered beneficial impacts for biological resources. With the exception of arroyo toad all or a substantial portion of each species' Critical Habitat in the BLM LUPA Lands would be within one of the conservation designations. Critical Habitat for bighorn sheep occurs mostly within existing conservation, but mostly within National Conservation Lands for the other species. Critical Habitat for Pierson's milk-vetch and bighorn sheep occurs mostly within existing conservation, but mostly within National Conservation Lands for the other species. Critical Habitat for the Pierson's milk-vetch is managed under the Imperial Sand Dunes RAMP, which provides protections for critical habitat within conservation areas and areas designated as closed to motorized (e.g. off-highway vehicle) use.

Table IV.7-235
Critical Habitat within BLM LUPA Conservation Designations for Non-Covered Species – Alternative 3

Common Name	Acres of Critical Habitat within BLM LUPA Lands	Existing Conservation	NLCS (acres)	ACEC (acres)	Wildlife Allocations (acres)	Total in Conservation
Amargosa nitrophila	1,000	0	1,000	0	0	1,000
Amargosa vole	4,000	1,000	2,000	0	0	3,000
Arroyo toad	30	0	0	0	0	0
Ash Meadows gumplant	300	0	300	0	0	300
Cushenbury buckwheat	400	0	400	0	0	400
Cushenbury milk-vetch	900	0	800	10	0	810
Cushenbury oxytheca	80	0	80	0	0	80

Table IV.7-235
Critical Habitat within BLM LUPA Conservation Designations for Non-Covered Species – Alternative 3

Common Name	Acres of Critical Habitat within BLM LUPA Lands	Existing Conservation	NLCS (acres)	ACEC (acres)	Wildlife Allocations (acres)	Total in Conservation
Lane Mountain milk-vetch	10,000	50	9,000	900	0	9,950
Pierson's milk-vetch[1]	12,000	12,000[2]	0	0	0	12,000
Peninsular Bighorn sheep	7,000	5,000	400	0	0	5,400

[1] NLCS and ACEC designations overlap, the entire Amargosa Valley, which contains the Amargosa vole critical habitat, is located within an ACEC.

[2] Pierson's milk-vetch are protected within areas designated as closed to motorized vehicles in the Imperial Sand Dunes RAMP. The ISDRA RAMP is not considered part of the DRECP decision area.

IV.7.3.5.3 Impacts of Natural Community Conservation Plan: Alternative 3

The impacts and mitigation measures for renewable energy and transmission development of the NCCP for Alternative 3 would be the same as those defined in Section IV.7.3.5.1 for the Plan-wide analysis.

As described in Section II.3.3 of Volume II, the NCCP would establish conservation designations within the Reserve Design Lands under each alternative. To reflect the conservation that would occur under the NCCP, the NCCP elements of each alternative define the following means of providing conservation within Reserve Design Lands:

- An **NCCP Conceptual Plan-Wide Reserve Design**, which defines the areas that are considered to be the highest priority for biological conservation. These priority conservation areas include both BLM lands and other lands, including private land and nonfederal public land. These priority conservation areas are consistent with those identified in the interagency plan-wide alternatives.
- A **DRECP NCCP Reserve Design**, which nested within the NCCP Conceptual Plan-Wide Reserve Design. The DRECP NCCP Reserve Design identifies those lands within BLM LUPA conservation designations that would be protected, maintained, and managed to preserve their conservation value for Covered Species for at least the duration of the NCCP. Within non-BLM lands, areas identified within the DRECP NCCP Reserve Design would be given a high priority for conservation through the purchase of private lands from willing sellers or placement of conservation easements on public lands. BLM lands and non-BLM Lands included in the DRECP NCCP Reserve Design would receive long-term protection and would be conserved and managed to preserve and enhance habitat for Covered Species.

- **Other conservation actions**, which would occur outside of the DRECP NCCP Reserve Design and NCCP Conceptual Plan-Wide Reserve Design and include the maintenance and management of all of the BLM LUPA conservation designation lands in accordance with the BLM LUPA conservation designations.

The following provides the conservation analysis for the NCCP.

Landscape

Habitat Linkages

Table IV.7-236 shows the conservation of the desert linkage network under Alternative 3 for the NCCP. Conservation of the desert linkage network totals more than 2.6 million acres (71%). Approximately 222,000 acres of the desert linkage network would be inside the DRECP NCCP Reserve Design (183,000 acres on BLM Land and 39,000 acres on non-BLM land). Approximately 654,000 acres of the desert linkage network would be inside the NCCP Conceptual Plan-Wide Reserve Design and 1,255,000 acres would be outside the NCCP Conceptual Plan-Wide Reserve Design. In addition to conservation of the desert linkage network, CMAs provide for the avoidance and minimization of certain linkages in the DFAs (see Section IV.7.3.2.2.1).

Table IV.7-236
NCCP Conservation Analysis for the Desert Linkage Network – Alternative 3

Desert Linkage Network by Ecoregion Subarea	Existing Conservation (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the DRECP NCCP Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Cadiz Valley and Chocolate Mountains	187,000	39,000	39,000	7,000	11,000	398,000	18,000	699,000
Imperial Borrego Valley	14,000	-	28,000	-	800	77,000	900	121,000
Kingston and Funeral Mountains	28,000	-	-	-	-	111,000	3,000	142,000
Mojave and Silurian Valley	179,000	-	51,000	-	15,000	134,000	7,000	388,000
Owens River Valley	40	-	-	-	-	11,000	800	12,000
Panamint Death Valley	109,000	20	33,000	-	2,000	40,000	600	185,000
Pinto Lucerne Valley and Eastern Slopes	16,000	55,000	28,000	15,000	7,000	28,000	4,000	153,000
Piute Valley and Sacramento Mountains	14,000	-	-	-	2,000	92,000	2,000	110,000
Providence and Bullion Mountains	144,000	-	300	-	50	213,000	9,000	365,000
West Mojave and Eastern Slopes	45,000	89,000	130,000	17,000	85,000	81,000	24,000	471,000
Grand Total	**736,000**	**183,000**	**309,000**	**39,000**	**123,000**	**1,186,000**	**69,000**	**2,645,000**

Notes: Conservation acreages reported for Existing Conservation and BLM LUPA conservation designations reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Hydrological Resources

A conservation analysis for hydrological resources is provided below, including playa, seep/spring, and the four major rivers in the Plan Area (i.e., Amargosa, Colorado, Mojave and Owens) for Alternative 3 under the NCCP. Conservation of riparian areas and wetlands, which co-occur with many of these hydrological resources is provided below under Natural Communities.

Playa

Overall, approximately 192,000 acres would be conserved under the Alternative 3 under the NCCP. Approximately 600 acres are within the DRECP NCCP Reserve Design (approximately 300 on BLM land and approximately 300 acres on non-BLM land). Approximately 12,000 acres of the playa acreage conserved is inside NCCP Conceptual Plan-Wide Reserve Design and approximately 86,000 acres are outside the NCCP Conceptual Plan-Wide Reserve Design. Additionally, playas and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks. CMAs for playas would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided riparian or wetland natural communities.

Seep/Spring

Overall, 306 locations of the seep/spring locations would be conserved under Alternative 3 under the NCCP. Approximately 16 seep/spring locations are within the DRECP NCCP Reserve Design (9 on BLM land and 7 on non-BLM land). Approximately 36 seep/spring locations are inside NCCP Conceptual Plan-Wide Reserve Design and approximately 80 seep/spring locations are outside the NCCP Conceptual Plan-Wide Reserve Design. Seeps and springs and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks. CMAs for seep/spring locations would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided wetland natural communities.

Major Rivers

None of the major rivers are conserved within the DRECP NCCP Reserve Design. Approximately 673,000 feet of the major rivers (Owens, Colorado, and Mojave) are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 103,000 feet of the Amargosa River are conserved outside the NCCP Conceptual Plan-Wide Reserve

Design. Major rivers and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks.

Dune and Sand Resources

Approximately half of the dunes and sand resources would be conserved in existing conservation areas under the NCCP. Approximately 17,000 acres are within the DRECP NCCP Reserve Design (approximately 14,000 acres on BLM land and approximately 3,000 acres on non-BLM land). Approximately 133,000 acres of the dunes and sand resources are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 476,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. Dunes and sand resources and associated Covered Species, natural communities, and ecological functions would be avoided through application of the dune avoidance and minimization CMAs.

Environmental Gradients

The conservation analysis addresses four types of environmental gradients in the Plan Area: elevation, landforms, slope, and aspect. The conservation of these four environmental gradients under Alternative 3 under the NCCP would follow the same overall pattern as Plan-wide conservation.

Natural Communities

Table IV.7-237 shows the conservation to natural communities under the NCCP. A conservation summary by general community is provided below in comparison to Plan-wide conservation discussed in Section IV.7.3.2.1.2.

California forest and woodlands

Overall, approximately 63,000 acres (42%) of chaparral and coastal scrubs would be conserved under Alternative 3 under the NCCP. Approximately 2,000 acres are within the DRECP NCCP Reserve Design (approximately 2,000 acres on BLM land and approximately 200 acres on non-BLM land). Approximately 2,000 acres of California forest and woodlands are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 34,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. In addition to conservation of California forest and woodlands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 33,000 acres (30%) of chaparral and coastal scrubs would be conserved under Alternative 3 under the NCCP. Approximately 3,000 acres are within the DRECP NCCP Reserve Design (approximately 2,000 acres on BLM land and approximately 1,000 acres on non-BLM land). Approximately 6,000 acres of chaparral and coastal scrubs are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 13,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. In addition to conservation of chaparral and coastal scrubs, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert conifer woodlands

Overall, approximately 187,000 acres (65%) of desert conifer woodlands would be conserved under Alternative 3 under the NCCP. Approximately 2,000 acres are within the DRECP NCCP Reserve Design (approximately 2,000 acres on BLM land and approximately 300 acres on non-BLM land). Approximately 2,000 acres of desert conifer woodlands are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 26,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. In addition to conservation of desert conifer woodlands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert outcrop and badlands

Overall, approximately 1,285,000 acres (80%) of desert outcrop and badlands would be conserved under Alternative 3 under the NCCP. Approximately 16,000 acres are within the DRECP NCCP Reserve Design (approximately 14,000 acres on BLM land and approximately 2,000 acres on non-BLM land). Approximately 83,000 acres of desert outcrop and badlands are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 400,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. In addition to conservation of desert outcrop and badlands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert scrubs

Overall, approximately 9,808,000 acres (74%) of desert scrubs would be conserved under Alternative 3 under the NCCP. Approximately 316,000 acres are within the DRECP NCCP Reserve Design (approximately 253,000 acres on BLM land and approximately 63,000 acres on non-BLM land). Approximately 1,319,000 acres of desert scrubs are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 2,859,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. In addition to conservation of desert scrubs, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Dunes

Overall, approximately 217,000 acres (77%) of dunes would be conserved under Alternative 3 under the NCCP. Approximately 600 acres are within the DRECP NCCP Reserve Design (approximately 300 acres on BLM land and approximately 300 acres on non-BLM land). Approximately 34,000 acres of dunes are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 36,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. In addition, CMA application would require avoidance of all dunes and prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

Grasslands

Overall, approximately 57,000 acres (24%) of grasslands would be conserved under Alternative 3 under the NCCP. Approximately 6,000 acres are within the DRECP NCCP Reserve Design (approximately 5,000 acres on BLM land and approximately 700 acres on non-BLM land). Approximately 15,000 acres of grasslands are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 18,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. In addition to conservation of grasslands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Riparian

Overall, approximately 705,000 acres (71%) of riparian communities would be conserved under Alternative 3 under the NCCP. Approximately 11,000 acres are within the DRECP NCCP Reserve Design (approximately 9,000 acres on BLM land and approximately 2,000

acres on non-BLM land). Approximately 77,000 acres of riparian are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 349,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. In addition, CMA application would require avoidance of and setbacks from all riparian communities as well as to other CMAs that would benefit riparian communities beyond simply conservation.

Wetlands

Overall, approximately 457,000 acres (53%) of wetland communities would be conserved under Alternative 3 under the NCCP. Approximately 21,000 acres are within the DRECP NCCP Reserve Design (approximately 16,000 acres on BLM land and approximately 6,000 acres on non-BLM land). Approximately 94,000 acres of wetlands are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 173,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. In addition, CMA application would require avoidance of and setbacks from Arid West freshwater emergent marsh and Californian warm temperate marsh/seep as well as other CMAs that would benefit riparian communities beyond simply conservation.

Table IV.7-237
NCCP Conservation Analysis for Natural Communities – Alternative 3

Natural Community	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
California forest and woodland								
Californian broadleaf forest and woodland	1,000	0	20	0	10	9,000	11,000	21,000
Californian montane conifer forest	25,000	2,000	90	200	0	9,000	6,000	42,000
Chaparral and coastal scrub community (Cismontane scrub)								
Californian mesic chaparral	20	0	0	0	0	300	600	900
Californian pre-montane chaparral	0	0	0	0	0	300	200	500
Californian xeric chaparral	3,000	30	10	0	10	700	3,000	7,000
Central and south coastal California seral scrub	0	0	0	0	0	10	50	70
Central and South Coastal Californian coastal sage scrub	2,000	2,000	2,000	1,000	700	2,000	4,000	14,000

Table IV.7-237
NCCP Conservation Analysis for Natural Communities – Alternative 3

Natural Community	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Western Mojave and Western Sonoran Desert borderland chaparral	9,000	0	0	0	0	80	900	10,000
Desert conifer woodlands								
Great Basin Pinyon - Juniper Woodland	159,000	2,000	200	300	200	12,000	13,000	187,000
Desert outcrop and badlands								
North American warm desert bedrock cliff and outcrop	802,000	14,000	62,000	2,000	5,000	378,000	22,000	1,285,000
Desert Scrub								
Arizonan upland Sonoran desert scrub	44,000	0	0	0	400	2,000	400	47,000

Table IV.7-237
NCCP Conservation Analysis for Natural Communities – Alternative 3

Natural Community	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Intermontane deep or well-drained soil scrub	30,000	13,000	27,000	2,000	2,000	8,000	2,000	82,000
Intermontane seral shrubland	1,000	2,000	800	500	1,000	700	3,000	9,000
Inter-Mountain Dry Shrubland and Grassland	110,000	22,000	2,000	2,000	3,000	85,000	15,000	238,000
Intermountain Mountain Big Sagebrush Shrubland and steppe	9,000	0	60	0	40	12,000	7,000	28,000
Lower Bajada and Fan Mojavean - Sonoran desert scrub	4,561,000	183,000	662,000	56,000	247,000	2,365,000	145,000	8,220,000
Mojave and Great Basin upper bajada and toeslope	838,000	34,000	33,000	3,000	8,000	124,000	26,000	1,065,000

Table IV.7-237
NCCP Conservation Analysis for Natural Communities – Alternative 3

Natural Community	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Shadscale - saltbush cool semi-desert scrub	38,000	40	10,000	10	7,000	47,000	17,000	119,000
Southern Great Basin semi-desert grassland	0	0	0	0	0	40	0	40
Dunes								
North American warm desert dunes and sand flats	146,000	300	30,000	300	3,000	31,000	5,000	217,000
Grassland								
California Annual and Perennial Grassland	23,000	5,000	3,000	700	6,000	6,000	11,000	55,000
California annual forb/grass vegetation	400	80	400	60	300	200	1,000	2,000

Table IV.7-237
NCCP Conservation Analysis for Natural Communities – Alternative 3

Natural Community	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Riparian								
Madrean Warm Semi-Desert Wash Woodland/Scrub	195,000	200	28,000	20	4,000	270,000	14,000	510,000
Mojavean semi-desert wash scrub	7,000	700	4,000	300	2,000	4,000	1,000	18,000
Sonoran-Coloradan semi-desert wash woodland/scrub	70,000	8,000	12,000	2,000	3,000	54,000	3,000	151,000
Southwestern North American riparian evergreen and deciduous woodland	500	10	10	50	1,000	300	500	3,000
Southwestern North American riparian/wash scrub	7,000	0	4,000	0	8,000	1,000	2,000	23,000

Table IV.7-237
NCCP Conservation Analysis for Natural Communities – Alternative 3

Natural Community	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Wetland								
Arid West freshwater emergent marsh	40	0	0	0	800	0	400	1,000
Californian warm temperate marsh/seep	0	0	0	0	0	0	80	80
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	136,000	300	6,000	200	2,000	64,000	4,000	213,000
Open Water	23,000	0	30	0	1,000	90	23,000	47,000
Playa	400	0	0	0	2,000	24,000	10,000	36,000
Southwestern North American salt basin and high marsh	31,000	15,000	38,000	5,000	22,000	38,000	8,000	158,000
Wetland	30	0	0	200	40	10	400	700

Table IV.7-237
NCCP Conservation Analysis for Natural Communities – Alternative 3

Natural Community	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Other Land Cover								
Agriculture	6,000	80	600	400	2,000	200	3,000	12,000
Developed and Disturbed Areas	3,000	30	200	20	100	1,000	2,000	7,000
Not Mapped	200	0	30	0	10	20	400	700
Rural	900	10	10	100	600	200	10,000	12,000
Total	**7,279,000**	**304,000**	**925,000**	**76,000**	**333,000**	**3,550,000**	**376,000**	**12,843,000**

[1] Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs)

Notes: Conservation acreages reported reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Covered Species Habitat

Table IV.7-238 shows the conservation of Covered Species modeled habitat under Alternative 3 before the application of CMAs under the NCCP. Generally, the percent conservation of Covered Species modeled habitat in available lands is highly variable, ranging from 1% for greater sandhill crane (primarily found in agricultural areas) to 84% for bighorn sheep mountain habitat.

None of the modeled habitat for flat-tailed horned lizard and Tehachapi slender salamander is inside the DRECP NCCP Reserve Design. Less than 5% each of the total suitable habitats for Agassiz's desert tortoise and Mojave fringe-toed lizard are inside the DRECP NCCP Reserve Design. None of the suitable habitat for Tehachapi slender salamander is inside the NCCP Conceptual Plan-Wide Reserve Design. Flat-tailed horned lizard is the only amphibian/reptile species with a substantial acreage of suitable habitat inside the NCCP Conceptual Plan-Wide Reserve Design. Almost half of the conserved suitable habitat for Mojave fringe-toed lizard is outside the NCCP Conceptual Plan-Wide Reserve Design. Over 90% of the conserved suitable habitat for Tehachapi slender salamander is outside the NCCP Conceptual Plan-Wide Reserve Design. Furthermore, the siting of the DFAs under Alternative 3 largely avoids habitat for Mojave fringe-toed lizard and Tehachapi slender salamander, and CMAs require avoidance of and setbacks from riparian habitat, wetland habitat, and dune habitat would further avoid and minimize the impacts on these species.

California condor has the greatest proportion of its conserved suitable habitat conserved inside the DRECP NCCP Reserve Design compared to other bird species, including California black rail, Gila woodpecker, greater sandhill crane, western yellow-billed cuckoo, and Yuma clapper rail, which have no suitable habitat conserved inside the DRECP NCCP Reserve Design. Conservation of bird species habitat conserved inside the NCCP Conceptual Plan-Wide Reserve Design ranges from 6% of conserved suitable golden eagle nesting habitat to 47% of western yellow-billed cuckoo conserved suitable habitat. Conservation outside of the NCCP Conceptual Plan-Wide Reserve Design ranges from 3% of conserved greater sandhill crane suitable modeled habitat to 69% of conserved Gila woodpecker suitable modeled habitat. Conservation of bird species associated primarily with wetland and riparian habitats (i.e., California black rail, least Bell's vireo, southwestern willow flycatcher, tricolored blackbird, western yellow-billed cuckoo, and Yuma clapper rail) would be augmented by CMAs requiring avoidance of and setbacks from riparian and wetland habitats. In addition to conservation of suitable habitat, CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs.

None of the modeled suitable habitat for fish Covered Species is inside the DRECP NCCP Reserve Design. Approximately 10% of the modeled suitable habitat for desert pupfish and Mojave tui chub is inside the NCCP Conceptual Plan-Wide Reserve Design. While 50% of the

conserved suitable habitat for desert pupfish is outside of the NCCP Conceptual Plan-Wide Reserve Design, none of the conserved suitable habitat for Mohave tui chub is outside of the NCCP Conceptual Plan-Wide Reserve Design with the remaining conserved acreage in existing conservation areas. About 60% of the conserved suitable habitat for Owens pupfish and Owens tui chub is inside the NCCP Conceptual Plan-Wide Reserve Design and 34% is outside. Avoidance and setback provisions for managed wetlands and agricultural drains would conserve wetland and riparian features within the agricultural matrix and provide conservation benefits to desert pupfish.

Only 1-3% of the conserved suitable habitat for bat Covered Species and bighorn sheep is inside the DRECP NCCP Reserve Design while 14% of conserved suitable habitat for Mohave ground squirrel is inside the DRECP NCCP Reserve Design. About 63% of the conserved suitable habitat for Mohave ground squirrel is inside the NCCP Conceptual Plan-Wide Reserve Design (20% outside). Conserved suitable habitat for bat Covered Species are 6-13% inside the NCCP Conceptual Plan-Wide Reserve Design (31-38% outside). Approximately 4-8% of the conserved suitable habitat for bighorn sheep (inter-mountain and mountain habitat) is inside the NCCP Conceptual Plan-Wide Reserve Design while 22-30% is outside of it. The siting of the DFAs under Alternative 3 largely avoid habitat for bighorn sheep. In addition to conservation of suitable habitat for covered mammal species, the CMAs require avoidance of and setbacks from riparian and wetland habitat that would reduce impacts on these habitats used by Mohave ground squirrel, California leaf-nosed bat, pallid bat, and Townsend's big-eared bat.

Conservation of suitable habitat for plant species inside the DRECP NCCP Reserve Design ranges from 0% for triple-ribbed milk-vetch to 34% for Barstow woolly sunflower. Conservation of suitable habitat for plant species inside the NCCP Conceptual Plan-Wide Reserve Design ranges from 0% for triple-ribbed milk-vetch to 92% for Barstow woolly sunflower. In addition to the conservation of modeled suitable habitat, the CMAs require surveys for plant Covered Species for all Covered Activities, and the CMAs requiring avoidance of and setbacks from occupied habitat would further reduce the impacts on these species.

In addition to conservation of suitable habitat for Covered Species, compensation CMAs would offset habitat loss for all Covered Species.

Table IV.7-238
NCCP Conservation Analysis for Covered Species Habitat – Alternative 3

Species	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Amphibian/Reptile								
Agassiz's desert tortoise	3,711,000	203,000	529,000	62,000	257,000	2,403,000	164,000	7,328,000
Flat-tailed horned lizard	151,000	-	223,000	-	23,000	25,000	4,000	427,000
Mojave fringe-toed lizard	403,000	13,000	43,000	2,000	9,000	358,000	20,000	848,000
Tehachapi slender salamander	300	-	-	-	-	6,000	7,000	14,000
Bird								
Bendire's thrasher	1,196,000	54,000	34,000	11,000	8,000	298,000	41,000	1,642,000
Burrowing owl	479,000	126,000	435,000	40,000	244,000	534,000	132,000	1,991,000
California black rail	21,000	-	5,000	-	5,000	6,000	2,000	40,000

Table IV.7-238
NCCP Conservation Analysis for Covered Species Habitat – Alternative 3

Species	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
California condor	81,000	40,000	7,000	8,000	5,000	92,000	80,000	313,000
Gila woodpecker	10,000	-	2,000	-	1,000	29,000	700	43,000
Golden eagle–foraging	5,518,000	219,000	433,000	39,000	112,000	2,197,000	161,000	8,680,000
Golden eagle–nesting	2,689,000	66,000	126,000	10,000	20,000	601,000	81,000	3,593,000
Greater sandhill crane	6,000	-	600	-	2,000	100	200	9,000
Least Bell's vireo	86,000	1,000	4,000	900	14,000	24,000	9,000	139,000
Mountain plover	7,000	200	2,000	600	7,000	600	10,000	26,000
Southwestern willow flycatcher	18,000	2,000	3,000	200	15,000	14,000	14,000	67,000
Swainson's hawk	24,000	5,000	11,000	700	36,000	17,000	61,000	154,000

Table IV.7-238
NCCP Conservation Analysis for Covered Species Habitat – Alternative 3

Species	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Tricolored blackbird	11,000	2,000	800	300	9,000	2,000	12,000	36,000
Western yellow-billed cuckoo	15,000	20	2,000	-	21,000	3,000	8,000	49,000
Yuma clapper rail	10,000	-	600	-	2,000	1,000	400	13,000
Fish								
Desert pupfish	900	-	90	-	10	200	300	1,000
Mohave tui chub	200	-	-	-	20	-	-	200
Owens pupfish	600	-	-	-	3,000	700	1,000	5,000
Owens tui chub	700	-	-	-	3,000	700	1,000	5,000

Table IV.7-238
NCCP Conservation Analysis for Covered Species Habitat – Alternative 3

Species	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Mammal								
Bighorn sheep – inter-mountain habitat	1,904,000	47,000	162,000	9,000	18,000	888,000	48,000	3,077,000
Bighorn sheep – mountain habitat	4,085,000	72,000	130,000	20,000	21,000	1,145,000	82,000	5,555,000
California leaf-nosed bat	3,138,000	67,000	245,000	11,000	41,000	2,034,000	107,000	5,643,000
Mohave ground squirrel	216,000	136,000	366,000	41,000	230,000	177,000	68,000	1,234,000
Pallid bat	6,836,000	276,000	847,000	69,000	304,000	3,382,000	296,000	12,010,000
Townsend's big-eared bat	5,879,000	245,000	779,000	54,000	271,000	2,945,000	304,000	10,478,000

Table IV.7-238
NCCP Conservation Analysis for Covered Species Habitat – Alternative 3

Species	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Plant								
Alkali mariposa-lily	200	700	-	70	30	10	8,000	9,000
Bakersfield cactus	20,000	21,000	600	1,000	900	30,000	22,000	96,000
Barstow woolly sunflower	3,000	25,000	37,000	9,000	22,000	2,000	2,000	101,000
Desert cymopterus	7,000	1,000	41,000	1,000	36,000	11,000	10,000	108,000
Little San Bernardino Mountains linanthus	87,000	10,000	-	2,000	-	26,000	9,000	134,000
Mojave monkeyflower	27,000	7,000	68,000	2,000	11,000	4,000	400	120,000
Mojave tarplant	48,000	23,000	2,000	2,000	3,000	53,000	11,000	142,000
Owens Valley checkerbloom	13,000	300	10	10	8,000	4,000	12,000	37,000

Table IV.7-238
NCCP Conservation Analysis for Covered Species Habitat – Alternative 3

Species	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Parish's daisy	82,000	13,000	90	4,000	50	23,000	5,000	128,000
Triple-ribbed milk-vetch	5,000	-	-	-	-	-	400	5,000

[1] Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs)

Notes: Conservation acreages reported reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For Agassiz's desert tortoise, desert tortoise important areas were identified that include tortoise conservation areas (TCAs), desert tortoise linkages, and desert tortoise high priority habitat (see desert tortoise BGOs in Appendix C). Table IV.7-239 provides a conservation analysis for these desert tortoise important areas under the NCCP, organized by desert tortoise Recovery Units: Colorado Desert, Eastern Mojave, and Western Mojave. Overall, approximately 238,000 acres of the desert tortoise important areas are inside the DRECP NCCP Reserve Design (182,000 acres on BLM land and 56,000 acres on non-BLM land). Approximately 884,000 acres of desert tortoise important areas are inside the NCCP Conceptual Plan-Wide Reserve Design and 2,456,000 acres are outside of it. CMAs would require avoidance of TCAs, except for impacts associated with transmission or impacts in disturbed portions of TCAs. Additionally, the CMAs would prohibit impacts that affect the viability of desert tortoise linkages. Compensation CMAs would be required for impacts to desert tortoise, including desert tortoise important areas.

Table IV.7-239
NCCP Conservation Analysis for Desert Tortoise Important Areas – Alternative 3

Recovery Unit	Desert Tortoise Important Areas	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
			Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Colorado Desert	High Priority Habitat	157,000	25,000	19,000	5,000	700	102,000	4,000	313,000
	Linkage	126,000	13,000	4,000	1,000	100	234,000	11,000	390,000
	TCA	1,544,000	40,000	7,000	6,000	1,000	1,122,000	48,000	2,768,000
Colorado Desert Total		*1,827,000*	*78,000*	*30,000*	*12,000*	*2,000*	*1,458,000*	*64,000*	*3,470,000*
Eastern Mojave	Linkage	421,000	-	-	-	-	253,000	10,000	684,000
	TCA	1,758,000	-	-	-	-	168,000	13,000	1,938,000
Eastern Mojave Total		*2,179,000*	-	-	-	-	*420,000*	*23,000*	*2,622,000*
Western Mojave	Linkage	391,000	36,000	28,000	14,000	21,000	166,000	21,000	676,000
	TCA	1,061,000	68,000	418,000	31,000	147,000	285,000	20,000	2,030,000
Western Mojave Total		*1,452,000*	*104,000*	*446,000*	*44,000*	*168,000*	*451,000*	*41,000*	*2,706,000*
Grand Total		**5,458,000**	**182,000**	**476,000**	**56,000**	**170,000**	**2,329,000**	**127,000**	**8,799,000**

[1] Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs)

Notes: Conservation acreages reported reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For Mohave ground squirrel, Mohave ground squirrel important areas were identified that include key population centers, linkages, expansion areas, and climate change extension areas (see Mohave ground squirrel BGOs in Appendix C). Table IV.7-240 provides a conservation analysis for these Mohave ground squirrel important areas under the NCCP. Approximately 182,000 acres of the Mohave ground squirrel important areas are inside the DRECP NCCP Reserve Design (144,000 acres on BLM land and 38,000 acres on non-BLM land). Approximately 645,000 acres of Mohave ground squirrel important areas are inside the NCCP Conceptual Plan-Wide Reserve Design and 300,000 acres are outside of it. Additionally, the CMAs would prohibit impacts that affect the viability of linkages. Compensation CMAs would be required for impacts to Mohave ground squirrel, including Mohave ground squirrel important areas.

Table IV.7-240
NCCP Conservation Analysis for Mohave Ground Squirrel Important Areas – Alternative 3

Mohave Ground Squirrel Important Area Type	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Key Population Center	47,000	86,000	**76,000**	**20,000**	38,000	83,000	12,000	362,000
Linkage	30,000	17,000	**101,000**	**8,000**	35,000	66,000	6,000	262,000
Expansion Area	77,000	27,000	**111,000**	**9,000**	93,000	71,000	10,000	398,000
Climate Change Extension	28,000	14,000	**30**	**500**	9,000	33,000	19,000	104,000
Total	**181,000**	**144,000**	**288,000**	**38,000**	**175,000**	**253,000**	**47,000**	**1,126,000**

[1] Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs)

Notes: Conservation acreages reported reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

IV.7.3.5.4 Impacts of General Conservation Plan: Alternative 3

IV.7.3.5.4.1 General Conservation Plan Impacts and Mitigation Measures from Renewable Energy and Transmission Development

The impacts of the GCP for Alternative 3 would be similar to those defined in Section IV.7.3.2.1 for the Plan-wide analysis, but they would occur on nonfederal lands only. On nonfederal lands under the GCP, Alternative 3 includes DFAs (approximately 1,175,000 acres) and transmission corridors where approximately 131,000 acres of ground disturbance related impacts and operational impacts would occur.

Impact BR-1: Siting, construction, decommissioning, and operational activities would result in loss of native vegetation.

Table IV.7-241 shows the impacts to natural communities under Alternative 3 under the GCP. An effects summary by general community is provided below in relation to the Plan-wide effects analysis provided in Section IV.7.3.2.1.1. Appendix R2 provides a detailed analysis of natural community effects by ecoregion subarea.

California forest and woodlands

No more than 5 acres (less than 0.01%) of California forest and woodlands would be impacted under Alternative 3 within the GCP. Furthermore, the same CMAs that would be applied Plan-wide to reduce impacts to this general community and the plant and wildlife species it supports would also be applied under the GCP. This includes CMAs that address roosting covered bat species (AM-DFA-BAT-1, AM-RES-RL-BAT-1, and AM-RES-RL-BAT-2), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs would offset that effect (COMP-1 and COMP-2).

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 800 acres (1.0%) of chaparral and coastal scrubs would be impacted under Alternative 3 within the GCP Area, which is the majority of the Plan-wide effects to this general community. Most of the impacts are from solar development in the West Mojave and Eastern Slopes and Pinto Lucerne Valley and Eastern Slopes subareas, but there would also be impacts from wind and transmission development in these subareas. The same CMAs that would be applied Plan-wide to reduce impacts to this general community and the plant and wildlife species it supports would also be applied under the GCP. This includes CMAs that address breeding, nesting, or roosting species (AM-DFA-BAT-1, AM-RES-RL-BAT-1, AM-RES-RL-BAT-2, AM-DFA-PLANT-1 through AM-DFA-PLANT-3, and AM-RES-RL-PLANT-1 through AM-RES-RL-PLANT-3), soil resources

(AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs would offset that effect (COMP-1 and COMP-2).

Desert conifer woodlands

Overall, approximately 700 acres (0.7%) of desert conifer woodlands would be impacted under Alternative 3 under the GCP, which is the majority of the Plan-wide effects. Most of the impacts are from solar and transmission development in the West Mojave and Eastern Slopes subarea, but there would also be impacts in the Pinto Lucerne Valley and Eastern Slopes that would also come mostly from solar and transmission development. In addition, wind development accounts for 40 acres of impacts to desert conifer woodlands. The same CMAs that would be applied Plan-wide to reduce impacts to this general community and the plant and wildlife species it supports would also be applied under the GCP. This includes CMAs that address breeding, nesting, or roosting species (AM-DFA-BAT-1, AM-RES-RL-BAT-1, and AM-RES-RL-BAT-2), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs would offset that effect (COMP-1 and COMP-2).

Desert outcrop and badlands

Overall, approximately 2,000 acres (0.7%) of desert outcrop and badlands would be impacted under Alternative 3 under the GCP, which constitutes only about one third of the Plan-wide effects. Most of the impacts would be in the Imperial Borrego Valley subarea, but there would also be relatively substantial impacts in the Cadiz Valley and Chocolate Mountains and Owens River Valley subarea. About 30 acres or less of impacts to desert outcrop and badlands would occur in other subareas. The same CMAs that would be applied Plan-wide to reduce impacts to this general community and the plant and wildlife species it supports would also be applied under the GCP. This includes CMAs that address breeding, nesting, or roosting species (AM-DFA-BAT-1, AM-RES-RL-BAT-1, and AM-RES-RL-BAT-2), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs would offset that effect (COMP-1 and COMP-2).

Desert scrubs

Overall, approximately 55,000 acres (1.9%) of desert scrubs would be impacted under the Alternative 3 under the GCP, which is over half of the Plan-wide effects. Most of the impacts to desert scrubs under the GCP are in the West Mojave and Eastern Slopes subarea, but impacts occur in all subareas except for the Kingston and Funeral Mountains and Piute Valley and Sacramento Mountains subareas. The same CMAs that would be

applied Plan-wide to reduce impacts to this general community and the plant and wildlife species it supports would also be applied under the GCP. These include avoidance, setbacks, and/or suitable habitat impact caps for flat-tailed horned lizard (AM-RES-RL-ICS-8 and AM-RES-RL-ICS-9 and AM-DFA-ICS-16), desert tortoise (AM-DFA-ICS-3 through AM-DFA-ICS-15 and AM-RES-RL-ICS-1 through AM-RES-RL-ICS-7), Mohave ground squirrel (AM-DFA-ICS-36 through AM-DFA-ICS-43 and AM-RES-BLM-ICS-14 through AM-RES-BLM-ICS-17), bat Covered Species (AM-DFA-BAT-1, AM-RES-RL-BAT-1,and AM-RES-RL-BAT-2), and plant Covered Species (AM-DFA-PLANT-1 through AM-DFA-PLANT-3, AM-RES-BLM-PLANT-1, and AM-RES-RL-PLANT-1 through AM-RES-RL-PLANT-3). Furthermore, soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) CMAs would be implemented that would help avoid and minimize these effects and compensation CMAs would offset the effect (COMP-1 and COMP-2).

Dunes

Application of the CMAs would require avoidance of dune communities to the maximum extent feasible in DFAs so there would be no impacts to dunes under the GCP. In addition, the same CMAs that would be applied Plan-wide to reduce impacts to this general community and the plant and wildlife species it supports would also be applied under the GCP. This includes the implementation of dune avoidance and minimization CMAs (AM-DFA-DUNE-1 through AM-DFA-DUNE-3, and AM-RES-RL-DUNE-1 through AM-RES-RL-DUNE-3) as well as compensation CMAs that would offset any unavoidable impacts (COMP-1 and COMP-2).

Grasslands

Overall, approximately 7,000 acres (3.3%) of grasslands would be impacted under Alternative 3 under the GCP, which is about the same as the Plan-wide effects. Most impacts are from solar development in the West Mojave and Eastern Slope subarea, but would also occur from wind development and transmission in this subarea and occur in the Cadiz Valley and Chocolate Mountains, Mojave and Silurian Valley, and Pinto Lucerne Valley and Eastern Slopes subareas. In addition, the same CMAs that would be applied Plan-wide to reduce impacts to this general community and the plant and wildlife species it supports would also be applied under the GCP. This includes CMAs that address breeding, nesting, or roosting species (AM-DFA-AG-2), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs would offset that effect (COMP-1 and COMP-2).

Riparian

Application of the CMAs would require avoidance of riparian communities to the maximum extent feasible in DFAs so there would be no impacts to riparian communities under the GCP. In addition, the same CMAs that would be applied Plan-wide to reduce impacts to this general community and the plant and wildlife species it supports would also be applied under the GCP. This includes CMAs for avoidance and minimization from riparian habitat and the Covered Species associated with riparian habitat (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9) as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

Wetlands

Overall, approximately 7,000 acres (2.0%) of wetlands would be impacted under Alternative 3 under the GCP, which is more than half of the Plan-wide effects. Impacts would be mostly from renewable energy development on open water at the Salton Sea in the Imperial Borrego Valley subarea. The same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied under the GCP, including avoidance of Arid West freshwater emergent marsh and Californian warm temperate marsh/seep (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9) as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

Table IV.7-241
GCP Impact Analysis for Natural Communities – Alternative 3

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
California forest and woodland						
Californian broadleaf forest and woodland	61,000	0	0	0	0	0
Californian montane conifer forest	44,000	0	0	0	0	0
Chaparral and coastal scrub community (Cismontane scrub)						
Californian mesic chaparral	3,000	0	0	0	0	0
Californian pre-montane chaparral	1,000	0	0	0	0	0
Californian xeric chaparral	19,000	0	0	0	30	30
Central and south coastal California seral scrub	1,000	0	0	0	0	0
Central and South Coastal Californian coastal sage scrub	42,000	500	40	0	200	700

Table IV.7-241
GCP Impact Analysis for Natural Communities – Alternative 3

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Western Mojave and Western Sonoran Desert borderland chaparral	15,000	0	0	0	40	40
Desert conifer woodlands						
Great Basin Pinyon - Juniper Woodland	104,000	500	40	0	200	700
Desert outcrop and badlands						
North American warm desert bedrock cliff and outcrop	220,000	900	10	200	500	2,000
Desert Scrub						
Arizonan upland Sonoran desert scrub	8,000	0	0	0	0	0
Intermontane deep or well-drained soil scrub	24,000	500	30	0	80	600
Intermontane seral shrubland	68,000	2,000	100	0	100	2,000
Inter-Mountain Dry Shrubland and Grassland	152,000	200	0	0	100	300
Intermountain Mountain Big Sagebrush Shrubland and steppe	48,000	0	0	0	0	0
Lower Bajada and Fan Mojavean - Sonoran desert scrub	2,254,000	36,000	2,000	800	5,000	45,000
Mojave and Great Basin upper bajada and toeslope	228,000	3,000	300	0	400	4,000
Shadscale - saltbush cool semi-desert scrub	157,000	3,000	80	200	500	4,000
Southern Great Basin semi-desert grassland	70	0	0	0	0	0
Dunes						
North American warm desert dunes and sand flats	34,000	0	0	0	0	0
Grassland						
California Annual and Perennial Grassland	196,000	6,000	300	0	300	7,000
California annual forb/grass vegetation	7,000	70	0	0	0	70

Table IV.7-241
GCP Impact Analysis for Natural Communities – Alternative 3

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Riparian						
Madrean Warm Semi-Desert Wash Woodland/Scrub	96,000	0	0	0	0	0
Mojavean semi-desert wash scrub	17,000	0	0	0	0	0
Riparian	600	0	0	0	0	0
Sonoran-Coloradan semi-desert wash woodland/scrub	34,000	0	0	0	0	0
Southwestern North American riparian evergreen and deciduous woodland	6,000	0	0	0	0	0
Southwestern North American riparian/wash scrub	47,000	0	0	0	0	0
Wetland						
Arid West freshwater emergent marsh	4,000	0	0	0	0	0
Californian warm temperate marsh/seep	400	0	0	0	0	0
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	36,000	600	20	0	100	800
Open Water	114,000	2,000	0	1,000	700	4,000
Playa	52,000	0	0	0	10	10
Southwestern North American salt basin and high marsh	112,000	1,000	50	0	100	1,000
Wetland	8,000	100	0	0	20	100
Other Land Cover – Developed and Disturbed Areas						
Agriculture	693,000	39,000	500	8,000	8,000	55,000
Developed and Disturbed Areas	399,000	400	0	30	2,000	2,000
Not Mapped	4,000	10	0	0	10	20
Rural	110,000	1,000	10	300	700	2,000
Total	**5,420,000**	**98,000**	**4,000**	**10,000**	**19,000**	**131,000**

1 Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
2 Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Rare natural community alliances could be impacted under Alternative 3 on nonfederal lands, including impacts to Joshua tree woodland. CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection that would help avoid and minimize these effects on rare natural communities. Additionally, AM-DFA-ONC-1 and -2 would require inventorying and preserving or transplanting cactus, yuccas, and succulents. While the compensation CMAs would offset the lost habitat acreage of these impacts, the compensation CMAs do not specifically require the replacement of or mitigation for specific rare natural community alliances. After application of the CMAs, impacts to rare natural communities from Alternative 3 would be adverse and would require mitigation.

Impact BR-2: Siting, construction, decommissioning, and operational activities would result in adverse effects to jurisdictional waters and wetlands.

Siting, construction, decommissioning, and operations of Covered Activities have the potential to result in adverse effects to federal or state jurisdictional waters and wetlands. In the Plan Area, jurisdictional waters and wetlands would likely include the riparian and wetland communities analyzed under Impact BR-1 and may also include other features including playas, seeps/springs, major rivers, and ephemeral drainage networks.

All Covered Activities would be required to comply with existing, applicable federal and state laws and regulations related to jurisdictional waters and wetlands. Additionally, all impacts to riparian communities would be avoided under Alternative 3 through application of the riparian CMAs including riparian setbacks. All impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep wetlands would be avoided under Alternative 3 through application of the wetland CMAs, including wetland setbacks (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). Approximately 6,000 acres of other wetland communities would be impacted under Alternative 3. See the analysis for the loss of native vegetation provided under BR-1 for a discussion of these potential impacts. All or a portion of the estimated wetland impacts could result in adverse effects to jurisdictional waters and wetlands without compensation. Compensation CMAs would offset any impacts determined to be unavoidable.

Additionally, playas, seeps/springs, major rivers, and ephemeral drainages are waters and wetland features that provide hydrological functions and may be determined to be jurisdictional waters and wetlands. Adverse effects to these features would have the potential to impact jurisdictional waters and wetlands.

Playa

Approximately 1% (600 acres) of playa would be impacted by Covered Activities under Alternative 3 within the GCP. The majority of impacts would be associated with solar (400 acres), with 30 acres of wind impacts, and 100 acres of transmission impacts. Ecoregion subareas of potential impacts to playas include the Cadiz Valley and Chocolate Mountains, Mojave and Silurian Valley, Owens River Valley, Panamint Death Valley, Pinto Lucerne Valley and Eastern Slopes, Providence and Bullion Mountains, and West Mojave and Eastern Slopes subareas.

Avoidance of impacts to wetland communities including playas would benefit Covered Species that utilize these communities. In addition, application of species-specific CMAs would help avoid and minimize impacts to species associated with playas (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). CMAs would also require compliance with all applicable laws and regulations pertaining to wetlands and waters, including playas (AM-PW-9 and AM-LL-2). Compensation CMAs would offset impacts to these features (COMP-1 and COMP-2).

Seep/Spring

Seeps occur within DFAs and transmission corridors and potential impacts to seep/spring have the potential to occur under Alternative 3 within the GCP in the following ecoregion subareas: Imperial Borrego Valley, Mojave and Silurian Valley, Owens River Valley, Pinto Lucerne Valley and Eastern Slopes, and West Mojave and Eastern Slopes. Impacts to seeps and springs would be adverse absent implementation of avoidance measures. Impacts to seep/spring locations and associated Covered Species and hydrological functions would be avoided through adherence to avoidance and minimization CMAs, including habitat assessments and avoidance of seeps with 0.25 mile setbacks (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). Compensation CMAs would offset any impacts determined to be unavoidable (COMP-1 and COMP-2).

Major Rivers

Under Alternative 3 within the GCP, there would no direct impacts to any of the four major rivers within the Plan Area – Amargosa, Colorado, Mojave, and Owens Rivers, but there could be indirect effects associated with modification of hydrology resulting from

development. Riparian CMAs would require avoidance of these features with setbacks (AM-DFA-RIPWET-1).

Ephemeral Drainages

Ephemeral drainages occur throughout the Plan Area, and some of these features could be determined to state or federal jurisdictional waters. Impacts to ephemeral drainages would likely occur from Covered Activities. Application of riparian avoidance CMAs (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9) would avoid and minimize impacts to a portion of the ephemeral drainages within DFAs. Additionally, all Covered Activities would be required to comply with existing, applicable federal and state laws and regulations related to jurisdictional waters and wetlands.

Impact BR-3: Siting, construction, decommissioning, and operational activities would result in degradation of vegetation.

Siting, construction, and operational Covered Activities would result in the degradation of vegetation through the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants. The degree to which these factors contribute to the degradation of vegetation corresponds to the distribution of Covered Activities within the GCP that would result in dust, fire, and introduction of invasive plants or that would use dust suppressants and implement fire management. The propensity for vegetation to be at risk of degradation was determined by the overlap between natural community models and the likely distribution of Covered Activities across subareas in the GCP.

Based on the planned renewable energy capacity, the greatest amount of terrestrial operational impacts within the GCP would occur in the West Mojave and Eastern Slopes and the Imperial Borrego Valley subareas, as shown in Table IV.7-242. As a result, these subareas would have the greatest potential to degrade vegetation as a result in the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants.

Table IV.7-242
GCP Terrestrial Operational Impacts – Alternative 3

Ecoregion Subarea	Solar Impact (acres)[1]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Cadiz Valley and Chocolate Mountains	12,000	1,000	-	3,000	16,000
Imperial Borrego Valley	33,000	200	10,000	10,000	53,200

Table IV.7-242
GCP Terrestrial Operational Impacts – Alternative 3

Ecoregion Subarea	Solar Impact (acres)[1]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Kingston and Funeral Mountains	-	-	-	-	-
Mojave and Silurian Valley	3,000	-	-	400	3,400
Owens River Valley	1,000	-	-	400	1,400
Panamint Death Valley	400	-	-	-	400
Pinto Lucerne Valley and Eastern Slopes	9,000	5,000	-	3,000	17,000
Piute Valley and Sacramento Mountains	-	-	-	-	-
Providence and Bullion Mountains	1,000	-	-	300	1,300
West Mojave and Eastern Slopes	37,000	10,000	-	2,000	49,000
Total	**98,000**	**16,000**	**10,000**	**19,000**	**143,000**

[1] Solar impacts include ground-mounted distributed generation.

Notes: Terrestrial operational impacts collectively refers to vegetation degradation impacts (BR-3) from dust, dust suppressants, fire, fire management, and invasive plants and wildlife impacts (BR-4) from creation of noise, predator avoidance behavior, lighting and glare. For the purposes of analysis, terrestrial operational impacts were quantified using the project area extent for solar and geothermal, using 25% of the project area for wind, and the right-of-way area for transmission.

Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation, short-term and long-term wind (excluding project area impacts), geothermal project area, and transmission impacts. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Dust and Dust Suppressants

Natural communities, and in particular natural communities containing Mojave desert shrubs, are susceptible to vegetation degradation from dust. Impacts to these natural communities would mostly occur in the West Mojave and Eastern Slope subarea, but would also occur from wind development and transmission and occur in the Pinto Lucerne Valley and Eastern Slopes subarea. Plant Covered Species, that could also experience vegetation degradation from dust, would mainly be impacted by Covered Activities in the West Mojave and Eastern Slopes subarea and to a lesser extent in the Pinto Lucerne Valley and Eastern Slopes subarea, which contain most of the impacts to plant Covered Species habitat within the GCP. Considering the distribution of Covered Activities that would cause dust as well as the sensitive natural communities and plant Covered

Species the West Mojave and Eastern Slopes subarea would experience the greatest magnitude of vegetation degradation resulting from dust.

The application of dust suppressants is a common management practice, a Covered Activity under the Plan, and has been shown to effectively reduce dust. Dust-related degradation of vegetation would be further minimized within the GCP through the incorporation of avoidance and minimization CMAs. The Plan-wide avoidance and minimization CMAs would generally identify vegetation in the project area (AM-PW-1), utilize standard practices to minimize the amount of exposed soils (AM-PW-14) and reduce dust caused by soil erosion (AM-PW-10). Additionally, Alternative 3 would implement CMAs that would identify and protect or salvage specific plant species, minimizing their exposure to dust. Setbacks and suitable habitat impact caps would also be implemented for plant Covered Species in DFAs and in the reserve design envelope (AM-DFA-PLANT-1 through AM-DFA-PLANT-3).

Riparian and wetland natural communities would be susceptible to the adverse effects of dust suppressants including chemical and physical changes, altered hydrological function, and increased pollutant loads in surface water. The Imperial Borrego Valley subarea would experience most of the impacts to riparian and wetland natural communities in the GCP, which corresponds to the potential greatest magnitude of vegetation degradation from adverse dust suppressant effects. Plant Covered Species, which would also be affected by the use of dust suppressants would mostly be impacted by Covered Activities in the West Mojave and Eastern Slopes subarea.

Avoidance and minimization CMAs implemented as part of Alternative 3, including AM-PW-9 and AM-PW-10, would utilize standard practices to reduce erosion and runoff of dust suppressant into sensitive vegetation. Setbacks and avoidance requirements for all riparian natural communities and some wetland natural communities that would be implemented as part of the CMAs would minimize potential adverse effects of dust suppressants on these communities (AM-DFA-RIPWET-1).

Fire and Fire Management

The increased presence of flammable invasive annual plants and anthropogenic ignitions of fires can cause the conversion of natural communities and degrade vegetation. Due to their slower speed of recovery, desert scrub natural communities are more susceptible to natural community conversion from fires. The impacts to desert scrub natural communities within the GCP would primarily occur within the West Mojave and Eastern Slopes subarea and to a lesser degree in the Pinto Lucerne Valley and Eastern Slopes subarea.

Under Alternative 3, construction and maintenance of fire breaks and other fire management techniques would impact California forest and woodlands, chaparral natural

communities, and grassland natural communities within the GCP. In combination these impacts to woodlands, chaparral, and grasslands, which correspond to the amount of potential vegetation degradation resulting from vegetation removal during fire management, would predominantly occur in the West Mojave and Eastern Slopes subarea. Avoidance and minimization CMAs would be implemented to reduce the potential adverse effects of fire and fire management, including AM-PW-12 that would require projects to minimize the amount of vegetation clearing and fuel modification, under the Alternative 3.

Invasive Plants

Invasive plants can result in vegetation degradation by increasing the fuel load and the frequency of fires in plant communities as well hindering the growth or establishment of other plant species. Overall, the natural communities and plant Covered Species in the GCP are generally at risk of adverse effects from the introduction of invasive plants. The most vegetation degradation caused by the introduction of invasive plants would occur in the West Mojave and Eastern Slopes and Pinto Lucerne Valley and Eastern Slopes subareas. Plant Covered Species in the GCP would also experience potential vegetation degradation as a result of Covered Activities with most of impacts occurring in the Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas.

Avoidance and minimization CMAs would be implemented to minimize vegetation degradation from invasive plants under Alternative 3, including AM-PW-7 that would ensure the timely restoration of temporarily disturbed areas that could otherwise promote invasive plants. Additional CMAs would use standard practices to control weeds and invasive plants (AM-PW-11) and require the responsible use of herbicides to reduce potential vegetation degradation (AM-PW-15) for all Covered Activities.

Impact BR-4: Siting, construction, decommissioning, and operational activities would result in loss of listed and sensitive plants; disturbance, injury, and mortality of listed and sensitive wildlife; and habitat for listed and sensitive plants and wildlife.

Impact BR-4 described at the Plan-wide level provides an impact analysis for Covered Species habitat by ecoregion subarea, specific Covered Species impact analyses, an indirect and terrestrial operational impact analysis for Covered Species, and a non-Covered Species impact analysis. The following provides an impact analysis for Covered Species on nonfederal GCP lands. Most of the impacts to plant and wildlife species and their habitat under Alternative 3 would occur in the Imperial Borrego Valley and West Mojave and Eastern Slopes subareas.

Covered Species Habitat Impact Analysis by Ecoregion Subarea

West Mojave and Eastern Slopes Ecoregion Subarea

Renewable energy development in the West Mojave and Eastern Slopes subarea would mostly be from solar development, but would also include impacts from wind and transmission development. Typical impacts from these Covered Activities on plant and wildlife species and their habitat is described in Section IV.7.2. This subarea provides suitable habitat for amphibians and reptiles that would be impacted, including Agassiz's desert tortoise and Mojave fringe-toed lizard. The siting of the DFAs under the GCP largely avoid habitat for Mojave fringe-toed lizard and CMAs require avoidance of and setbacks from dune habitat (AM-DFA-DUNE-1 through AM-DFA-DUNE-3) would further avoid and minimize the impacts on these species to less than the acreage reported in Table IV.7-243. Compensation CMAs would offset habitat loss for these species.

There are impacts to suitable habitat for several bird Covered Species in the West Mojave and Eastern Slopes subarea, including Bendire's thrasher, burrowing owl, California condor, golden eagle, least Bell's vireo, mountain plover, southwestern willow flycatcher, Swainson's hawk, and tricolored blackbird that would be impacted. CMAs requiring avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further avoid and minimize the impacts on least Bell's vireo, southwestern willow flycatcher, and tricolored blackbird to less than the acreage reported in Table IV.7-243. Additionally, the CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs (AM-DFA-AG-2). Compensation CMAs would offset habitat loss for these species.

Suitable habitat for bighorn sheep, desert kit fox, Mohave ground squirrel, pallid bat, and Townsend's big-eared bat would be impacted in this subarea. The siting of the DFAs under the GCP largely avoid habitat for bighorn sheep. The CMAs require avoidance of and setbacks from riparian and wetland habitat (AM-DFA-RIPWET-1) that would further reduce the impacts on these habitats used by Mohave ground squirrel, pallid bat, and Townsend's big-eared bat to less than the acreage reported in Table IV.7-243. Compensation CMAs would offset habitat loss for these species.

Suitable habitat for the following plant species would be impacted in the West Mojave and Eastern Slopes subarea: alkali mariposa-lily, Bakersfield cactus, Barstow woolly sunflower, desert cymopterus, Mojave monkeyflower, and Mojave tarplant. Although modeled suitable habitat for these species may be impacted by Covered Activities in this subarea, the CMAs require surveys for plant Covered Species for all Covered Activities, and the CMAs requiring avoidance of and setbacks from occupied habitat (AM-DFA-PLANT-1 through AM-DFA-PLANT-3) would further reduce the impacts on these species to less than the acreage reported in Table IV.7-243. Compensation CMAs would offset habitat loss for these species.

Imperial Borrego Valley Ecoregion Subarea

Renewable energy development within the Imperial Borrego Valley subarea would be primarily from solar energy development, but would also include impacts from geothermal, wind and transmission development. The Imperial Borrego Valley subarea provides suitable habitat for flat-tailed horned lizard that would be impacted. The siting of the DFAs under the GCP largely avoid habitat for flat-tailed horned lizard, and CMAs require avoidance of and setbacks from dune habitat (AM-DFA-DUNE-1 through AM-DFA-DUNE-3) would further avoid and minimize the impacts on this species to less than the acreage reported in Table IV.7-243.

Impacts would occur to suitable habitat for the following covered bird species in this subarea: Bendire's thrasher, burrowing owl, California black rail, Gila woodpecker, golden eagle, greater sandhill crane, least Bell's vireo, mountain plover, southwestern willow flycatcher, Swainson's hawk, tricolored blackbird, and Yuma clapper rail. CMAs requiring avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further avoid and minimize the impacts on southwestern willow flycatcher, tricolored blackbird, least Bell's vireo, California black rail, and Yuma clapper rail to less than the acreage reported in Table IV.7-243. Additionally, the CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs (AM-DFA-AG-2).

Impacts to suitable habitat for desert pupfish, the only fish species with suitable habitat in this subarea, would total approximately 200 acres. The avoidance and setback provisions for managed wetlands and agricultural drains (AM-DFA-RIPWET-1) would conserve wetland and riparian features within the agricultural matrix and provide conservation benefits to desert pupfish.

Only minimal impacts (approximately 20 acres) would occur to bighorn sheep mountain habitat in this subarea. Impacts to suitable habitat for other covered mammals species would occur for California leaf-nosed bat, pallid bat, and Townsend's big-eared bat. In addition, suitable habitat for the Planning Species desert kit fox would be impacted. The siting of the DFAs under the GCP largely avoid habitat for bighorn sheep. The CMAs require avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further reduce the impacts on these habitats used by California leaf-nosed bat, pallid bat, and Townsend's big-eared bat to less than the acreage reported in Table IV.7-243.

Table IV.7-243
GCP Impact Analysis for Covered Species Habitat – Alternative 3

Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Amphibian/Reptile						
Agassiz's desert tortoise	2,248,000	33,000	2,000	-	4,000	39,000
Flat-tailed horned lizard	310,000	5,000	10	2,000	2,000	9,000
Mojave fringe-toed lizard	168,000	4,000	40	-	1,000	5,000
Tehachapi slender salamander	41,000	-	-	-	-	-
Bird						
Bendire's thrasher	405,000	4,000	300	500	2,000	6,000
Burrowing owl	3,244,000	84,000	3,000	9,000	15,000	111,000
California black rail	127,000	2,000	-	600	800	3,000
California condor	997,000	16,000	800	-	1,000	18,000
Gila woodpecker	56,000	400	-	100	300	700
Golden eagle–foraging	1,498,000	10,000	500	30	1,000	12,000
Golden eagle–nesting	676,000	400	20	-	300	700
Greater sandhill crane	601,000	34,000	300	7,000	7,000	49,000
Least Bell's vireo	104,000	200	10	10	80	300
Mountain plover	811,000	42,000	700	7,000	8,000	58,000
Southwestern willow flycatcher	258,000	4,000	50	1,000	1,000	6,000
Swainson's hawk	1,339,000	35,000	1,000	4,000	5,000	45,000
Tricolored blackbird	257,000	9,000	400	20	200	9,000
Western yellow-billed cuckoo	111,000	300	10	-	40	400
Yuma clapper rail	31,000	40	-	10	10	60
Fish						
Desert pupfish	7,000	100	-	50	60	200
Mohave tui chub	100	-	-	-	-	-
Owens pupfish	13,000	50	-	-	10	60
Owens tui chub	13,000	50	-	-	10	60

Table IV.7-243
GCP Impact Analysis for Covered Species Habitat – Alternative 3

Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Mammal						
Bighorn sheep – inter-mountain habitat	465,000	1,000	60	-	500	2,000
Bighorn sheep – mountain habitat	807,000	3,000	300	-	2,000	4,000
California leaf-nosed bat	979,000	7,000	60	500	3,000	11,000
Mohave ground squirrel	1,319,000	22,000	1,000	-	2,000	26,000
Pallid bat	3,775,000	48,000	3,000	1,000	8,000	60,000
Townsend's big-eared bat	3,510,000	44,000	2,000	2,000	8,000	56,000
Plant						
Alkali mariposa-lily	117,000	3,000	200	-	100	3,000
Bakersfield cactus	200,000	900	40	-	60	1,000
Barstow woolly sunflower	82,000	600	40	-	10	700
Desert cymopterus	137,000	1,000	40	-	10	1,000
Little San Bernardino Mountains linanthus	130,000	900	100	-	100	1,000
Mojave monkeyflower	41,000	300	40	-	50	400
Mojave tarplant	129,000	20	-	-	70	100
Owens Valley checkerbloom	92,000	400	-	-	100	500
Parish's daisy	72,000	800	100	-	300	1,000
Triple-ribbed milk-vetch	3,000	-	-	-	-	-

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
[2] Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Specific Covered Species Impact Analyses

For Agassiz's desert tortoise, desert tortoise important areas were identified that include tortoise conservation areas (TCAs), desert tortoise linkages, and desert tortoise high priority habitat (see desert tortoise BGOs in Appendix C). Table IV.7-244 provides an impact analysis for these desert tortoise important areas in the GCP area, organized by desert tortoise Recovery Units: Colorado Desert, Eastern Mojave, and Western Mojave. Within the Colorado Desert Recovery Unit, approximately 800 acres of TCAs, linkage habitat, and high priority habitat would be impacted under Alternative 3. Within the Eastern Mojave Recovery Unit, no habitat would be impacted under Alternative 3. Within the Western Mojave Recovery Unit, approximately 10,000 acres of TCAs and linkage habitat would be impacted under Alternative 3. CMAs would require avoidance of TCAs, except for impacts associated with transmission or impacts in disturbed portions of TCAs. Additionally, the CMAs would prohibit impacts that affect the viability of desert tortoise linkages (AM-DFA-ICS-1 and AM-DFA-ICS-3 through 15). Compensation CMAs would be required for impacts to desert tortoise, including desert tortoise important areas.

Table IV.7-244
GCP Impact Analysis for Desert Tortoise Important Areas – Alternative 3

Recovery Unit	Desert Tortoise Important Areas	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Colorado Desert	High Priority Habitat	31,000	-	-	-	-	-
	Linkage	63,000	10	-	-	10	10
	TCA	269,000	90	-	-	700	800
Colorado Desert Total		**363,000**	**100**	**-**	**-**	**700**	**800**
Eastern Mojave	Linkage	56,000	-	-	-	-	-
	TCA	66,000	-	-	-	-	-
Eastern Mojave Total		**122,000**	-	-	-	-	-
Western Mojave	Linkage	407,000	7,000	600	-	1,000	9,000
	TCA	392,000	500	20	-	200	700
Western Mojave Total		**798,000**	**8,000**	**700**	**-**	**1,000**	**10,000**
Total		**1,283,000**	**8,000**	**700**	**-**	**2,000**	**11,000**

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
[2] Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For golden eagle, a territory-based analysis was conducted (see methods and results in the Chapter IV.7 portion of Appendix R2). Using the golden eagle nest database, golden eagle territories were identified and individually buffered by 1 mile (representing breeding areas around known nests) and 4 miles (representing use areas around known nests). A total of 157 territories occur wholly or partially within the GCP area. Under Alternative 3, 27 territories have DFAs or transmission corridors within 1 mile of a nest. Implementation of the CMAs for golden eagles (AM-DFA-ICS-2) would prohibit siting or construction of Covered Activities within 1 mile of an active golden eagle nest; therefore, impacts within 1 mile of these golden eagle territories would be avoided. Under Alternative 3, 61 territories have DFAs or transmission corridors within 4 miles of nest, and the use area of these territories could be impacted through harassment and reduced foraging opportunities by Covered Activities depending of the siting of specific projects. The CMAs for golden eagles (Section II.3.1.2.5) and the approach to golden eagles (see Appendix H) describes how the impact to golden eagles would be avoided, minimized, and compensated. Based on the 2013 analysis, no more than 15 golden eagles per year in 2014 would be allowed to be taken within the Plan Area, which would be reassessed annually.

For bighorn sheep, bighorn sheep mountain habitat and intermountain (linkage) habitat have been identified in the Plan Area. Under Alternative 3 on nonfederal land, approximately 4,000 acres of mountain habitat and 2,000 acres of intermountain habitat would be impacted. Alternative 3 identified DFAs that largely avoid impacts to bighorn sheep mountain and intermountain habitat, and avoidance, minimization, and compensation CMAs have been developed to offset the loss of habitat for bighorn sheep.

For Mohave ground squirrel, Mohave ground squirrel important areas were identified that include key population centers, linkages, expansion areas, and climate change extension areas (see Mohave ground squirrel BGOs in Appendix C). Table IV.7-245 provides an impact analysis for these Mohave ground squirrel important areas in the GCP area. A total of approximately 1,000 acres of impact would occur in climate change extension areas under Alternative 3. A total of approximately 300 acres of impact to linkage and approximately 2,000 acres of impact to expansion areas would occur under Alternative 3. The CMAs would prohibit impacts that affect the viability of linkages (AM-DFA-ICS-36 through AM-DFA-ICS-43). Compensation CMAs would be required for impacts to Mohave ground squirrel, including Mohave ground squirrel important areas.

Table IV.7-245
GCP Impact Analysis for Mohave Ground Squirrel Important Areas – Alternative 3

Mohave Ground Squirrel Important Area Type	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Key Population Center	193,000	1,000	60	-	100	2,000
Linkage	103,000	200	-	-	80	300
Expansion Area	258,000	2,000	80	-	60	2,000
Climate Change Extension	131,000	900	-	-	200	1,000
Total	**684,000**	**5,000**	**100**	**-**	**500**	**6,000**

1 Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
2 Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Within the Plan Area, critical habitat has been designated by the USFWS for the following Covered Species: desert tortoise, southwestern willow flycatcher, desert pupfish, and Parish's daisy. For desert tortoise, approximately 1,000 acres of impact designated critical habitat would result from the development of Covered Activities on nonfederal lands under Alternative 3 located in the Chuckwalla, Fremont-Kramer, Ord-Rodman, and Superior-Cronese critical habitat units. Under Alternative 3, no impacts to critical habitat designated for southwestern willow flycatcher, desert pupfish, or Parish's daisy would occur from the development of Covered Activities on nonfederal lands.

Indirect and Terrestrial Operational Impact Analysis

Siting, construction, and operational Covered Activities could result in the potential disturbance, injury, and mortality of listed and sensitive wildlife from noise, predator avoidance behavior, as well as light and glare. The degree to which these factors contribute to the disturbance of sensitive wildlife corresponds to the distribution of Covered Activities within the GCP that would result in noise, predator avoidance behavior, or light and glare. Based on the planned renewable energy capacity in the GCP, most of the terrestrial operational impacts would occur in the West Mojave and Eastern Slopes and the Imperial Borrego Valley subareas respectively, as shown in Table IV.7-242. The Pinto Lucerne Valley and Eastern Slopes as well as the Cadiz Valley and Chocolate Mountains subareas would also experience prevalent amounts of terrestrial operational impacts within the GCP. As a

result, these subareas would have the greatest potential to disturbance of sensitive wildlife from noise, predator avoidance behavior, as well as light and glare.

Noise

noise can cause physical damage to wildlife as well as behavioral changes in habitat use, activity patterns, reproduction, and foraging. Nesting birds are expected to be particularly sensitive to noise effects. The largest amount of impacts to bird Covered Species habitat in the GCP would be located in the West Mojave and Eastern Slopes and Imperial Borrego Valley subareas. Smaller mammals, such as the Mohave ground squirrel, and reptiles, such the Mojave fringe-toed lizard and flat-tailed horned lizard, could experience increased predation from noise hindering their ability to detect predators. The combined impacts in the GCP to the habitat for these Covered Species would mostly occur in the West Mojave and Eastern Slopes and Imperial Borrego Valley subareas, and to a lesser extent in the Pinto Lucerne and Eastern Slopes subarea. As such, the disturbance of wildlife from noise would predominantly occur in the West Mojave and Eastern Slopes and Imperial Borrego Valley subareas.

Implementation of avoidance and minimization CMAs under Alternative 3 would minimize the disturbance and injury of wildlife from noise-related effects. The CMA AM-PW-13 would reduce noise generated from Covered Activities using standard practices while other CMAs that would avoid and setback Covered Activities from noise-sensitive wildlife including seasonal setbacks for nesting birds; setbacks from riparian and wetland habitat benefitting bids, amphibians, and small mammals; and avoidance of Mohave ground squirrel's during operations (AM-DFA-RIPWET-1, AM-DFA-RIPWET-5, and AM-DFA-ICS-36).

Predator Avoidance Behavior

The effects of predator avoidance behavior include wildlife experiencing behavioral changes due to human activities during siting, construction, and operations. Although different wildlife species may have varying sensitivities to predator avoidance behavior and may experiences different magnitudes of responses to Covered Activities, Covered Activities are expected to generally result in predator avoidance and other behavioral changes in most wildlife species that are spread throughout the GCP. Therefore, the most disturbance of wildlife from predator avoidance behavior would occur in the West Mojave and Eastern Slopes and Pinto Lucerne Valley and Eastern Slopes subareas, where a most of the terrestrial operational impacts within the GCP are anticipated.

Avoidance and minimization CMAs for siting Covered Activities away from sensitive wildlife habitat would be implemented for riparian and wetland habitat, wildlife species that inhabit agricultural lands, and for particular species such as the Mohave ground squirrel (AM-DFA-RIPWET-1, AM-DFA-RIPWET-5, AM-DFA-AG-2, and AM-DFA-ICS-36).

Under Alternative 3, additional CMAs would inform workers of actions that could potentially affect wildlife behavior and restrict activities that could disturb wildlife and their access to water and foraging habitat (AM-PW-5, AM-PW-13, and AM-RES-RL-DUNE-2). Seasonal restrictions would also be implemented for recreational activities that might affect Bighorn sheep in the reserve design envelope (AM-RES-BLM-ICS-11). The potential disturbance of wildlife from predator avoidance behavior caused by siting, construction, and operational Covered Activities in the GCP would be minimized by these measures.

Light and Glare

Exposure of wildlife to light and glare can alter wildlife behavior including foraging, migration, and breeding. Solar projects are expected to have greater effects on wildlife compared to other renewable energy technologies because they would produce increased levels of glare due to the large amount of reflective panel or heliostat surfaces. Potential adverse effects associated with light and glare from solar projects, including solar flux and bird collisions from the lake effect are analyzed in BR-9. Most of the terrestrial operational impacts in the GCP resulting from development of all technology types of renewable energy would occur in the West Mojave and Eastern Slopes and Pinto Lucerne Valley and Eastern Slopes subareas. The Imperial Borrego Valley and West Mojave and Eastern Slopes subareas would experience most of terrestrial operational impacts from solar projects in the GCP. Therefore, these subareas would have the greatest potential to disturbance of sensitive wildlife from noise, predator avoidance behavior, as well as light and glare.

Bats and other diurnal predators may exploit night lighting that increases prey detectability, but would also be attracted to areas of greater development that increase potential hazards such as collision. Impacts to habitat for bats would as a result of Covered Activities in the GCP would mainly be located in the West Mojave and Eastern Slopes and the Pinto Lucerne Valley and Eastern Slopes subareas. Migratory birds that fly during the night may be affected by aviation safety lighting. For bird Covered Species the West Mojave and Eastern Slopes and Imperial Borrego Valley are the subareas primarily affected, containing most of the impacts to bird Covered Species habitat in the GCP. As such, wildlife disturbance is anticipated to occur primarily in the West Mojave and Eastern Slopes subarea and to a lesser extent in the Pinto Lucerne Valley and Eastern Slopes as well as the Imperial Borrego Valley subareas.

Alternative 3 would implement avoidance and minimization CMAs within the GCP specifically intended to reduce effects of lighting and glare including AM-PW-14, which would implement standard practices for shielding and reducing the use of lights, as well as AM-DFA-RIPWET-4, which specifically restricts lighting within one mile of riparian or wetland vegetation. Other CMAs applicable in the GCP would implement setbacks for riparian and wetland habitat, wildlife species that inhabit agricultural lands, and for

smaller mammals, which would minimize their exposure to light and glare from Covered Activities (AM-DFA-RIPWET-1, AM-DFA-RIPWET-5, and AM-DFA-AG-2).

Non-Covered Species

Potential impacts to Non-Covered Species on GCP Land were analyzed as described in Section IV.7.3.2.1. Table IV.7-246 provides an estimation of the impacts to natural communities associated with Non-Covered Species. While estimation of impacts to natural communities likely overestimates the potential impacts to Non-Covered Species habitats, it provides a general range of level of impact.

Impacts to the dune community, riparian communities, arid west freshwater emergent marsh, and Californian warm temperate marsh/seep would be avoided through implementation of CMAs, so impacts to potential habitat for each of these species is likely greater than would actually occur. For some species, impacts would be further minimized through avoidance of the specific natural communities required for those species, e.g. dune-, spring-, or cave-restricted invertebrates, or riparian-obligate bird and amphibian species. The total impact to potential habitat across all technology types is less than 1%, with the exception the desert scrub/chaparral communities at approximately 1.5%, grassland communities at approximately 3%, and within the agriculture/rural land cover areas at approximately 7%.

Critical habitat for the federally-listed Non-Covered Species would essentially be avoided across all renewable energy types.

The results of impacts on Non-Covered Species from the creation of noise, predator avoidance behavior, and light and glare would be similar to those described for the Covered Species.

Table IV.7-246
GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – Preferred Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
California forest and woodland/ Desert conifer woodlands	Coast horned lizard, grey vireo, loggerhead shrike, yellow warbler, American badger, bighorn sheep, fringed myotis, hoary bat, long-eared myotis, pocketed free-tailed bat, spotted bat, Tehachapi pocket mouse, western mastiff bat, western small-footed myotis, Amargosa beardtongue, Charlotte's phacelia, creamy blazing star, Cushenbury buckwheat, Cushenbury milk-vetch, Cushenbury oxytheca, Kern buckwheat, Piute Mountains jewel-flower, purple-nerve cymopterus, San	209,000	500	40	0	200	740	0.4%

Table IV.7-246
GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – Preferred Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	Bernardino Mountains dudleya, short-joint beavertail cactus, Spanish needle onion, Tracy's eriastrum, Cushenbury buckwheat							
Desert Scrub/ Chaparral Communities	Arroyo toad, banded gila monster, Coast horned lizard, Colorado Desert fringe-toed lizard, Couch's spadefoot, rosy boa, bald eagle, bank swallow, Crissal thrasher, Ferruginous hawk, gilded flicker, grey vireo, Le Conte's thrasher, loggerhead shrike, long-eared owl, Lucy's warbler, northern harrier, yellow warbler, American badger, Arizona myotis, big free-tailed bat, bighorn sheep, cave	3,020,000	45,200	2,600	1,000	6,500	55,300	1.8%

Table IV.7-246
GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – Preferred Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	myotis, fringed myotis, hoary bat, long-eared myotis, Palm Springs pocket mouse, pocketed free-tailed bat, spotted bat, Tehachapi pocket mouse, western mastiff bat, western small-footed myotis, western yellow bat, yellow-eared pocket mouse, Yuma myotis, Algodones Dunes sunflower, Ash Meadows gum plant, Amargosa beardtongue, bare-stem larkspur, Charlotte's phacelia, Cima milk-vetch, Coachella Valley milk-vetch, creamy blazing star, Cushenbury buckwheat, Cushenbury milk-vetch, Cushenbury							

Table IV.7-246
GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – Preferred Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	oxytheca, desert pincushion, Emory's crucifixion-thorn, flat-seeded spurge, forked buckwheat, Harwood's eriastrum, Harwood's milkvetch, Inyo County star-tulip, Kelso Creek monkeyflower, Kern buckwheat, Las Animas colubrina, Lane Mountain Milk-Vetch, Mojave Desert plum, Mojave milkweed, Munz's Cholla, nine-awned pappus grass, Orcutt's woody aster, Orocopia sage, Parish's club cholla, Pierson's milk-vetch, pink fairy-duster, Piute Mountains jewel-flower, purple-nerve cymopterus, Red Rock poppy, Red Rock tarplant,							

Table IV.7-246
GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – Preferred Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	Robinson's monardella, Rusby's desert-mallow, sand food, Sodaville milk-vetch, short-joint beavertail cactus, Spanish needle onion, Thorne's buckwheat, Tracy's eriastrum, Utah beardtongue, white bear poppy, White-margined beardstongue, Wiggin's croton, Flat-seeded spurge, Parish's phacelia, Parish's alkali grass							
Dunes3/ Desert Outcrop and Badlands	Banded gila monster, barefoot gecko, Coast horned lizard, Colorado Desert fringe-toed lizard, Couch's spadefoot, rosy boa, bald eagle, bank swallow, Le Conte's thrasher, loggerhead shrike, long-eared owl,	254,000	1,000	0	200	500	1,700	0.7%

Table IV.7-246
GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – Preferred Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	northern harrier, Amargosa vole, big free-tailed bat, bighorn sheep, cave myotis, bat, spotted bat, western mastiff bat, Yuma myotis, Algodones Dunes sunflower, Ash Meadows gum plant, Amargosa beardtongue, Amargosa niterwort, Charlotte's phacelia, Cima milk-vetch, Coachella Valley milk-vetch, creamy blazing star, desert pincushion, Emory's crucifixion-thorn, flat-seeded spurge, forked buckwheat, Harwood's eriastrum, Harwood's milkvetch, Inyo County star-tulip, Las Animas colubrina, Mojave Desert plum, Mojave							

Table IV.7-246
GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – Preferred Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	milkweed, nine-awned pappus grass, Orcutt's woody aster, Orocopia sage, Palmer's jackass clover, Parish's club cholla, Pierson's milk-vetch, pink fairy-duster, purple-nerve cymopterus, Red Rock poppy, Red Rock tarplant, Robinson's monardella, Rusby's desert-mallow, sand food, Spanish needle onion, Thorne's buckwheat, Utah beardtongue, white bear poppy, Wiggin's croton, Palmer's jackass clover, white-margined beardtongue, flat-seeded spurge							
Grassland	Coast horned lizard, American peregrine falcon, bank swallow, Ferruginous hawk,	203,000	6,100	300	0	300	6,700	3.3%

Table IV.7-246
GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – Preferred Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	long-eared owl, northern harrier, white-tailed kite, Amargosa vole, American badger, spotted bat, Cushenbury milk-vetch, Cushenbury oxytheca, short-joint beavertail cactus							
Riparian/ Wetlands	Arroyo toad, California red-legged frog, Coast horned lizard, Couch's spadefoot, Western pond turtle, American peregrine falcon, Arizona Bell's vireo, bald eagle, bank swallow, Crissal thrasher, gilded flicker, elf owl, Inyo California towhee, loggerhead shrike, long-eared owl, Lucy's warbler, northern harrier, redhead, vermillion	413,000	2,000	100	0	200	2,300	0.6%

Table IV.7-246
GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – Preferred Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	flycatcher, white-tailed kite, yellow-breasted chat, yellow-headed blackbird, yellow warbler, Amargosa vole, Mojave River vole, Arizona myotis, cave myotis, fringed myotis, hoary bat, long-eared myotispocketed free-tailed bat, spotted bat, western mastiff bat, western yellow bat, Yuma myotis, Ash Meadows gum plant, Inyo County star-tulip, Parish's alkali grass, Parish's phacelia, Amargosa pupfish, Amargosa speckled dace, Amargosa spring snails							
Agriculture/ Rural Land Cover	American peregrine falcon, Bank swallow, loggerhead shrike,	803,000	40,000	500	8,300	9,000	48,800	6.1%

Table IV.7-246
GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – Preferred Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	long-eared owl, northern harrier, redhead, yellow-headed blackbird, yellow warbler, Arizona myotis, hoary bat, Tehachapi pocket mouse, western mastiff bat, western yellow bat							

1 Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

2 Solar impacts include ground-mounted distributed generation.

3 Impacts to the dune community, riparian communities, arid west freshwater emergent marsh, and Californian warm temperate marsh/seep would be avoided through implementation of CMAs. Only impacts determined to be unavoidable would occur in these natural communities.

4 This amount assumes the loss of conservation value for all land fragmented by the well fields.

Notes: The natural community classification system is described in Chapter III.7 and follows CDFG 2012. Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. Totals may not sum due to rounding. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Impact BR-5: Siting, construction, decommissioning, and operational activities could result in loss of nesting birds (violation of the federal Migratory Bird Treaty Act and California Fish and Game Code Sections 3503, 3503.5, 3511, and 3513).

Siting, construction, decommissioning, and operations of renewable energy and transmission projects would result in the removal of vegetation and other nesting habitat and cause increased human presence and noise that has the potential to cause the loss of nesting birds, which would be a violation of the federal Migratory Bird Treaty Act. The potential loss of nesting birds resulting from these activities would be adverse without application of CMAs. Avoidance and minimization CMAs (AM-PW-4, 13, 14; AM-DFA-RIPWET-1, 3, 5; AM-DFA-AG-1 through 6; AM-DFA-ICS CMAs for bird species) include the season restrictions, survey requirements, and setbacks necessary to avoid and minimize the loss of nesting birds.

Impact BR-6: Siting, construction, decommissioning, and operational activities would adversely affect habitat linkages and wildlife movement corridors, the movement of fish, and native wildlife nursery sites.

Species-specific habitat linkages and wildlife movement areas are a component of analysis conducted under Impact BR-4 above. Suitable habitat for each species includes areas of habitat linkages and wildlife movement. Analysis under BR-4 specifically incorporates habitat linkage information for desert tortoise, Mohave ground squirrel, and desert bighorn sheep. In addition to the species-specific analysis of impacts to suitable habitat supporting habitat linkages and wildlife movement for species, landscape level information on habitat linkages (i.e., Desert Linkage Network) and migratory bird movement are analyzed below.

Desert Linkage Network

Table IV.7-247 shows the impact analysis for the desert linkage network for Alternative 3 for the GCP. Overall, over 12,000 acres of desert linkage network could be adversely impacted in DFAs and transmission corridors in mainly six different subareas. In the Cadiz Valley and Chocolate Mountains subarea, DFAs are located in the portion of the desert linkage network that connects the Colorado River to the northern part of the McCoy Mountains. There are also DFAs in the linkage network that extends along the McCoy Mountains and connects south to the Palo Verde Mesa. There are also DFAs in linkages in the Chuckwalla Valley that extend west and south. In the Mojave and Silurian Valley, there are DFAs in the Mojave Valley in a linkage that connects the area east of Barstow north to the Superior Valley. In the Owens River Valley, there are DFAs in the desert linkage network that connects the Haiwee Reservoir to Indian Wells. In the Panamint Death Valley there is a DFA in the Searles Valley in a linkage that connects the Argus and Searles Ranges. In the Pinto Lucerne Valley and Eastern Slopes subarea, there are DFAs in the desert linkage network that connects the Grapevine Canyon Recreation Lands to the Granite Mountains and the Ord Mountains. There are also DFAs in the linkage that connects

Quartzite Mountain to the Mojave River. In the West Mojave and Eastern Slopes subarea, there are DFAs in the linkage that connects the area around Baldy Mesa along the southern edge of the Plan Area to Helendale. DFAs also occur in the Brisbane Valley and in the linkages around Barstow. Farther west in the Plan Area, there are DFAs in the linkages that connect Fremont Valley and Soledad Mountain to the Tehachapi Mountains.

To avoid and minimize impacts to the desert linkage network beyond what is presented in Table IV.7-247, Covered Activities will be sited and designed to maintain the function of wildlife connectivity in the following linkage and connectivity areas: (1) across Interstate 10 centered on Wiley's Well Road to connect the Mule and McCoy mountains, (2) across Interstate 10 to connect the Chuckwalla and Palen mountains, (3) across Interstate 10 to connect the Chuckwalla Mountains to the Chuckwalla Valley east of Desert Center, and (4) the confluence of Milpitas Wash and Colorado River floodplain. In addition, the Riparian and Wetland Natural Communities and Covered Species CMAs will contribute to maintaining and promoting habitat connectivity and wildlife movement.

Table IV.7-247
GCP Impact Analysis for the Desert Linkage Network – Alternative 3

Desert Linkage Network by Ecoregion Subarea	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Cadiz Valley and Chocolate Mountains	148,000	1,000	30	-	1,000	2,000
Imperial Borrego Valley	10,000	100	-	30	10	100
Kingston and Funeral Mountains	12,000	-	-	-	-	-
Mojave and Silurian Valley	101,000	1,000	-	-	80	1,000
Owens River Valley	4,000	60	-	-	30	90
Panamint Death Valley	15,000	30	-	-	-	30
Pinto Lucerne Valley and Eastern Slopes	122,000	2,000	200	-	1,000	3,000
Piute Valley and Sacramento Mountains	24,000	-	-	-	-	-
Providence and Bullion Mountains	49,000	-	-	-	-	-
West Mojave and Eastern Slopes	468,000	5,000	300	-	300	5,000
Total	**952,000**	**9,000**	**500**	**30**	**3,000**	**12,000**

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
[2] Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Migratory Bird

Migration patterns and the potential impacts of different technologies are discussed, in the typical impacts section (Section IV.7.2.1.3), with direct habitat loss quantified in BR-4, and operational impacts quantified in BR-9. The following analysis focuses on the anticipated distribution of different technology types in relation to known migratory corridors, and migratory resources in each subarea.

In Alternative 3, wind generation is a small proportion of the overall generation mix. Nonfederal land DFAs are divided between the West Mojave and Eastern Slopes, Pinto Lucerne Valley and Cadiz and Chocolate Mountain Subareas. Wind development would mostly occur on the eastern slopes of the Tehachapi Mountains and in the mountainous areas around Lucerne Valley. Key bird migration areas affected would include routes between the Tehachapi and San Bernardino passes, and the temporary lakes and wetland refuges on and to the north of Edwards AFB. Wind development would also occur in the Cadiz and Chocolate Mountains subarea to the north west of Blythe in the McCoy wash area, and north of the I-10. These areas are near to the Colorado River migratory corridor, and may affect migratory bird movement to and from the Coachella Valley.

As with the plan-wide impacts, solar development would be constructed throughout the West Mojave and Eastern slopes, and Imperial Borrego Valley subareas. With smaller quantities of development in nonfederal DFAs in the Pinto Lucerne Valley, Mojave and Silurian Valley and Cadiz and Chocolate Mountains subareas. Affected migratory resources would be the same as for wind development, namely, routes between mountain passes and dry lakes in the north Mojave, and foraging areas for overwintering birds in Imperial Borrego Valley, as well as migratory routes between the Colorado River and the Coachella Valley.

Application of CMAs would require projects to be sited and designed to avoid impacts to occupied habitat and suitable habitat for Covered Species to the maximum extent feasible. Further, siting and construction CMAs would minimize direct loss of riparian and wetland habitats. Compensation CMAs would offset habitat loss for Covered Species. A bird and bat use and mortality monitoring program would be implemented during operations. Further, proposed projects that are likely to impact bird and bat Covered Species during operation would develop and implement a project-specific Bird and Bat Covered Species Operational

Actions that meets the approval of the appropriate DRECP Coordination Group. The goal of the project-specific Bird and Bat Covered Species Operational Actions would be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar and geothermal projects. Siting and construction CMAs would minimize direct loss of riparian and wetlands habitats. Compensation CMAs would offset habitat loss for Covered Species. The compensation requirements in the Bird and Bat Covered Species Operational Actions would be based on ongoing/annual fees and the biological basis for the fee would be determined by the mortality effects as annually measured and monitored according to the AM-LL-4. In combination, the application of siting, monitoring, operational and compensation CMAs would minimized impacts to migratory birds. Application of CMAs would reduce the overall impacts to migratory bird populations.

Impact BR-7: Siting, construction, decommissioning, and operational activities would result in habitat fragmentation and isolation of populations of listed and sensitive plants and wildlife.

As discussed in the Plan-wide analysis, the construction and operation of renewable energy and transmission projects can have the potential to fragment intact and interconnected landscapes resulting in isolated patches of habitat, isolated species populations, reduced gene flow, and remaining habitat that is more exposed to the edge effects of adjacent developments. The DRECP integrated planning process, as described in Volume II, avoids and minimizes this impact through the siting of DFAs and through the reserve design. In order to minimize habitat fragmentation and population isolation, DFAs were sited in less intact and more degraded areas. Measures of fragmentation and population isolation effects include the amount of impacts on environmental gradients such as elevation, landforms, slope, and aspect. The impacts to these four environmental gradients under Alternative 3 within DFAs under the GCP would follow the same overall pattern as Plan-wide impacts (AM-LL-1 through AM-LL-4).

Impact BR-8: Construction of generation facilities or transmission lines would result in increased predation of listed and sensitive wildlife species.

As discussed in the Plan-wide analysis, Covered Activities in undisturbed desert habitat are likely to supplement predators, and increase predation rates on Covered Species. The GCP Alternative 3 would result 72,000 acres of permanent conversion of natural desert communities and with 60,000 acres of impacts (44% of the total ground disturbance) within areas characterized by disturbed land cover types.

Development in the West Mojave and Eastern Slopes subareas may supplement predators in undisturbed habitats including parts of the Tehachapi Mountains and DFAs to the north of Edwards AFB. However, much of the development would be expected in disturbed and agricultural land around Lancaster and in the Antelope Valley. In the West Mojave and

Eastern Slopes subareas, susceptible species would include nestlings and eggs of Covered Species like tricolored blackbird and golden eagle, mountain plover, Bendire's thrasher, Swainson's hawk, as well as reptiles like the desert tortoise and the Tehachapi slender salamander, and mammals like the Mohave ground squirrel. Covered Activities associated with solar and wind generation in the Pinto and Lucerne Valley subarea would affect areas in Lucerne Valley to the East of Victorville. Species impacted would include golden eagle, and other nesting birds as well as reptiles like desert tortoise. The development in the Cadiz and Chocolate Mountains subarea would be expected in both agricultural and disturbed lands around Blythe and along the I-10 corridor. Impacts are likely to increase predation on susceptible species including desert tortoise, Mojave fringe-toed lizard, desert tortoise and, nesting bird species. Impacts from solar and geothermal development area anticipated in Imperial Borrego Valley. Impacts would occur in agricultural habitats south of and west side of the Salton Sea. Increased predation may affect nesting birds; impacts may affect flat-tailed horned lizard, desert tortoise, and nesting birds.

Application of a Common Raven Management Plan (AM-PW-6), approved by the appropriate DRECP Coordination Group would reduce project activities that increase predator subsidization. Activities include: removal of trash and organic waste; minimize introduction of new water sources including pooling of water from dust control; removal of carcasses from bird and bat collisions; and reduction in new nesting and perching sites where feasible.

Impact BR-9: Operational activities would result in avian and bat injury and mortality from collisions, thermal flux or electrocution at generation and transmission facilities.

The impacts of operation activities on avian and bat injury and mortality are analyzed below for wind turbines, solar, and transmission.

Wind Turbine

This section summarizes wind turbine operational impacts to bird and bat species within the private lands DFAs. The range of collision rates calculated in Table IV.7-248 is indicative of the overall annual collision rates for all bird and bat species, not just Covered Species. The range of collision rates is estimated for the final full build-out of wind over the life of the Plan, and is based on the range of collision rates in existing published and gray literature. While it is possible to provide a range of possible collision rates, it is not feasible to estimate the collision rate for each Covered Species, but only infer the propensity for a species to be at risk of collision from its expected distribution and life history of the birds in the Plan Area.

Overall, Alternative 3 would result in a median of 4,000 collisions per year for birds and 19,000 collisions for bats in DFAs on nonfederal lands. The expected distribution of wind

generation indicates that 60% of all collisions would occur in the West Mojave and Eastern Slopes subarea, 31% in the Pinto Lucerne Valley and Eastern Slopes subarea, 8% in the Cadiz Valley and Chocolate Mountains subarea, and 1% in the Imperial Borrego Valley subarea.

Wind operation in the West Mojave and Eastern Slopes subarea would impact Bendire's thrasher, burrowing owl, California condor, golden eagle, mountain plover, southwestern willow flycatcher, Swainson's hawk, and tricolored blackbird. Whereas, wind operations in the Pinto and Lucerne Valley subarea would affect golden eagle territories and important Bendire's thrasher habitat. Wind operations in the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas would result in a higher risk of collisions for Bendire's thrasher, burrowing owl, California black rail, Gila woodpecker, golden eagle, greater sandhill crane, mountain plover, western yellow-billed cuckoo, and Yuma clapper rail. Covered bat species including California leaf-nosed bat, pallid bat and Townsend's big eared bat would be impacted in all subareas.

Pre-construction CMAs require habitat assessments and pre-construction surveys for covered riparian and wetland bird, burrowing owl, greater sandhill crane, Swainson's hawk, Bendire's thrasher, golden eagle, and covered plant species.

Application of siting CMAs would avoid or minimize the risk to species localities. Setbacks from active nests would be required for Bendire's thrasher, California condor, Gila woodpecker, and golden eagle. In addition, projects would be sited and designed to avoid impacts to occupied habitat, and suitable habitat for Covered Species to the maximum extent feasible. Implementation of bat specific CMAs include 0.5 mile setbacks from all bat maternity roosts and 5% disturbance caps on desert scrub and woodland habitats in the vicinity of occupied Pallid bat and Townsend's Big eared Bats roosts would reduce impacts to covered bat species.

Applicants would develop and implement a project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meets the approval of the appropriate DRECP Coordination Group. The goal of the project-specific Bird and Bat Covered Species Operational Actions will be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar, geothermal, or transmission project. A bird and bat use and mortality monitoring program will be implemented during operations using current protocols and best procedures available at time of monitoring. Further, the compensation requirements in the Bird and Bat Covered Species Operational Actions would be based on ongoing/annual fees and the biological basis for the fee will be determined by the mortality effects as annually measured and monitored according to the Bird and Bat Covered Species Operational Actions.

Similarly, a Condor Operations Strategy (COS) would be developed on a project-specific basis with the goal of avoiding mortality from operations of wind, solar and geothermal

projects. No take for condors will be will be permitted in the form of kill from project operations. Any actions taken to encourage condors to leave an area that might result in harassment, injury, or mortality to the bird will be conducted by a Designated Biologist.

Table IV.7-248
GCP Estimated Range of Bird and Bat Collisions per Year by Subarea – Alternative 3

Ecoregion Subarea	# Turbines	Birds (Collisions/Yr)[1]			Bats (Collisions/Yr)[1]		
		Low	*Median*	*High*	*Low*	*Median*	*High*
Cadiz Valley and Chocolate Mountains	63	100	300	1,000	100	2,000	9,000
Imperial Borrego Valley	12	-	100	200	-	300	2,000
Kingston and Funeral Mountains	0	-	-	-	-	-	-
Mojave and Silurian Valley	0	-	-	-	-	-	-
Owens River Valley	0	-	-	-	-	-	-
Panamint Death Valley	0	-	-	-	-	-	-
Pinto Lucerne Valley and Eastern Slopes	253	400	1,000	5,000	500	6,000	35,000
Piute Valley and Sacramento Mountains	0	-	-	-	-	-	-
Providence and Bullion Mountains	0	-	-	-	-	-	-
West Mojave and Eastern Slopes	486	700	2,000	9,000	1,000	11,000	68,000
Grand Total	**813**	**1,000**	**4,000**	**16,000**	**2,000**	**19,000**	**114,000**

[1] Method for estimation of annual bird and bat collision rates described in Section IV.7.1.1.2 and discussed in more detail in Section IV.7.2.1.3

Note: The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table

Solar

Under Alternative 3, impacts to avian and bat species from solar development based on the planned solar capacity. The distribution of impacts under the GCP would be similar to that which is found in the Plan-wide analysis. Nonfederal DFAs would see a 5.2-fold increase in collision risks relative to baseline. 13% of the collision risks would occur in the Cadiz and Chocolate Mountains, with, 33% in Imperial Borrego Valley, 42% in West Mojave and

Eastern Slopes, and 7% at Pinto Lucerne Valley and Eastern Slopes, and the remaining 5% would be spread across the rest of the plan area.

Development in the Cadiz and Chocolate Mountains subarea under the GCP would occur in the agricultural lands around Blythe. Species habitat impacted by Covered Activities include Bendire's thrasher, burrowing owl, Gila woodpecker, golden eagle, greater sandhill crane, mountain plover, pallid bat, California leaf-nosed bat, and Townsend's big-eared bat. Anticipated impacts in the Imperial Borrego Valley subarea under the GCP would occur in agricultural and wetland habitats south and west side of the Salton Sea. Birds at risk from solar impacts include Bendire's thrasher, burrowing owl, California black rail, Gila woodpecker, golden eagle, greater sandhill crane, mountain plover, southwestern willow flycatcher, Swainson's hawk, Yuma clapper rail, pallid bat, California leaf-nosed bat, and Townsend's big-eared bat. Development in the West Mojave and Eastern Slopes subareas would occur in the Tehachapi Mountains, areas to the north of Edwards AFB, and agricultural land around Lancaster and in the Antelope Valley. In these areas, susceptible species would include pallid bat, California leaf-nosed bat, Townsend's big-eared bat, tricolored blackbird, golden eagle, mountain plover, Bendire's thrasher, burrowing owls and to a lesser extent Swainson's hawk. Covered Activities associated with solar generation in the Pinto and Lucerne Valley subarea would mostly occur in nonfederal DFAs in the western part of Lucerne Valley. Species impacted would include golden eagle and Bendire's thrasher.

To offset potential impacts, the application of CMAs would require projects to be sited and designed to avoid impacts to occupied and suitable habitat for Covered Species, to the maximum extent feasible. Further, siting and construction CMAs require setbacks from riparian and wetland habitats which would minimize acres of impacts of important migratory bird habitat. Compensation CMAs would offset habitat loss for Covered Species. A bird and bat use and mortality monitoring program would be implemented during operations. Any proposed projects that are likely to impact bird and bat Covered Species during operation would develop and implement project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meet the approval of the appropriate DRECP Coordination Group. The goal of the project-specific Bird and Bat Covered Species Operational Actions would be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar and geothermal projects. The compensation requirements of AM-LL-4 would be based on ongoing/annual fees and the biological basis for the fee would be determined by the mortality effects as annually measured and monitored according to AM-LL-4. In combination, the application of siting, monitoring, operational and compensation CMAs would minimize impacts to resident and migratory birds.

Bat mortality from solar facilities may occur because of collision or solar flux injury. No DFAs are known to be specifically sensitive areas for bat foraging, and implementation of bat specific CMAs include 500 feet setbacks from all bat maternity roosts and 5% disturbance caps on desert scrub and woodland habitats in the vicinity of occupied pallid bat and Townsend's big-eared bat roosts would reduce impacts to bat Covered Species.

Further, the development of Bird and Bat Covered Species Operational Actions (AM-LL-4) as discussed above would greatly reduce the risk to bat populations. Consequently, application of CMAs would reduce the overall impacts to bat populations

Transmission

The transmission collision and electrocution impacts would occur from generation tie lines (collector lines), new substations, and major transmission lines (delivery lines) that deliver power to major load centers. The distribution of impacts from collector lines would mostly occur within DFAs and be similar in distribution to the generation facilities. Most of the affected areas on nonfederal lands would be in Imperial Borrego Valley, Cadiz Valley and Chocolate Mountains, Pinto Lucerne Valley and Eastern Slopes, and the West Mojave and Eastern Slopes, subareas, with 10,000acres, 3,000 acres, 3,000 acres, and 2,000 acres of terrestrial impacts anticipated respectively. The remaining 1,000 acres of terrestrial impacts would be spread throughout the remaining subareas.

Both large transmission lines and the network of smaller gen-tie lines would present collision and electrocution hazard to covered bird species. In particular, lines running perpendicular to migratory corridors, and/or close to bird refuges would represent a greater hazard. Such lines would include those anticipated to run parallel to the Tehachapi mountains and those that would cross the Tehachapi mountain passes. In addition, anticipated delivery lines in Chuckwalla Valley would run parallel to I-10 corridor in the existing transmission corridors. In the Imperial Borrego Valley subarea, lines would run along the along the eastern side of Salton Sea in existing transmission corridors that run parallel to the foothills of the Chocolate Mountains. All these lines would represent additional risk to migrating and overwintering covered avian species, due to their location, especially in bad weather when flocks of migratory birds may be forced down.

All bird Covered Species may be impacted by additional transmission infrastructure. To ameliorate potential hazards, transmission projects would reduce impacts to Covered Species by implementing Plan-wide, landscape-level, natural community, and Covered Species CMAs where feasible, as discussed under the wind impacts section.

Applicants would develop and implement a project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meets the approval of the appropriate DRECP Coordination Group. The goal of the project-specific BBOS will be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar, geothermal, or transmission project. A bird and bat use and mortality monitoring program will be implemented during operations using current protocols and best procedures available at time of monitoring. Further, the compensation requirements in the Bird and Bat Covered Species Operational Actions would be based on ongoing/annual fees and the mortality effects as annually measured and monitored according to the Bird and Bat Covered Species Operational Actions will determine the biological basis for the fee.

In addition, transmission projects would implement transmission specific CMAs that would, where feasible, bury electrical collector lines along roads (AM-TRANS-1); fit flight diverters on all transmission projects spanning or within 1,000 feet of water bodies and watercourses (AM-TRANS-2); avoid siting transmission projects that span canyons or are located on ridgelines (AM-TRANS-3); restrict transmission projects to within designated utility corridors (AM-TRANS-4). With the implementation of CMAs impacts to Covered Species would minimized.

Operational Impacts Take Estimates for Covered Avian and Bat Species

The following section summaries the initial estimates for take of Covered Species by operational activities that would require compensatory mitigation. Take estimates integrate all sources of mortality for each technology discussed above.

Table IV.7-249
GCP Estimated Total Take for Covered Avian and Bat Species – Alternative 3

Covered Bird and Bat Species	Solar Impact	Wind Impact	Geothermal Impact	Total Impact
Bendire's thrasher	30	20	0	50
Burrowing owl	140	10	10	160
California condor[1]	0	0	0	0
California black rail	30	0	0	30
Gila woodpecker	30	0	0	30
Golden eagle[2]	n/a	n/a	n/a	n/a
Least Bell's vireo	60	0	0	60
Mountain plover	70	10	10	90
Greater sandhill crane	10	0	0	10
Southwestern willow flycatcher	60	0	0	60
Swainson's hawk	40	10	0	50
Tricolored blackbird	60	30	0	90
Western yellow billed cuckoo	30	0	0	30
Yuma clapper rail	30	0	0	30
Grand Total Avian Species	**590**	**80**	**20**	**690**
California leaf-nosed bat	20	10	0	30
Pallid bat	10	40	0	50
Townsend's big-eared bat	40	10	10	60
Grand Total Bat Species	70	60	10	140

1 Take for California condor would not be permitted under the DRECP.

2 Take of Golden Eagle would be permitted on a project by project basis. Based on the 2013 analysis, no more than 15 golden eagles per year would be authorized for 2014 for any new activity within the Plan Area. Take limits for the DRECP area will be re-evaluated annually based on the amount of ongoing take and population estimates of eagles within the local-area population of eagles.

Note: Totals may not sum due to rounding

IV.7.3.5.4.2 Impacts of the Reserve Design under the General Conservation Plan

In the nonfederal GCP portion of the Plan Area for Alternative 3, the Reserve Design Lands include existing conservation areas on nonfederal lands (434,000 acres), nonfederal lands within BLM LUPA conservation designations (1,222,000 acres), and Conservation Planning Areas on nonfederal lands (1,174,000 acres). The following provides an analysis of the conservation that would be provided by these areas, organized by landscape, natural communities, and species.

Landscape

Habitat Linkages

Table IV.7-250 shows the conservation of the desert linkage network under Alternative 3 for the GCP. Conservation of the desert linkage network totals more than 286,000 acres (30%). None of the linkages are entirely conserved under the GCP. However, the majority of the linkage from the southern end of the Plan Area directly north to the Los Angeles/Kern County line in the West Mojave and Eastern Slopes subarea is conserved, as well as the part of the linkage across the Mojave Desert farther north. In addition to conservation of the desert linkage network, CMAs provide for the avoidance and minimization of certain linkages in the DFAs (see Section IV.7.3.5.4.1).

Table IV.7-250
GCP Conservation Analysis for the Desert Linkage Network – Alternative 3

Desert Linkage Network by Ecoregion Subarea	Available Lands (acres)	Existing Conservation[1] (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Cadiz Valley and Chocolate Mountains	148,000	2,000	29,000	7,000	38,000	26%
Imperial Borrego Valley	10,000	-	2,000	200	2,000	17%
Kingston and Funeral Mountains	12,000	30	2,000	400	2,000	17%
Mojave and Silurian Valley	101,000	5,000	17,000	6,000	28,000	28%
Owens River Valley	4,000	-	700	70	800	17%

Table IV.7-250
GCP Conservation Analysis for the Desert Linkage Network – Alternative 3

Desert Linkage Network by Ecoregion Subarea	Available Lands (acres)	Existing Conservation[1] (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Panamint Death Valley	15,000	6,000	2,000	500	8,000	57%
Pinto Lucerne Valley and Eastern Slopes	122,000	12,000	23,000	3,000	39,000	32%
Piute Valley and Sacramento Mountains	24,000	-	2,000	2,000	4,000	17%
Providence and Bullion Mountains	49,000	4,000	6,000	3,000	13,000	27%
West Mojave and Eastern Slopes	468,000	26,000	75,000	50,000	152,000	32%
Grand Total	**952,000**	**56,000**	**158,000**	**72,000**	**286,000**	**30%**

1 Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on nonfederal land

2 Includes nonfederal inholdings within existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations)

Notes: Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Hydrological Resources

A conservation analysis for hydrological resources is provided below, including playa, seep/spring, and the four major rivers in the Plan Area (i.e., Amargosa, Colorado, Mojave and Owens) under Alternative 3 within the GCP. Conservation of riparian areas and wetlands, which co-occur with many of these hydrological resources is provided below under Natural Communities.

Playa

Playa totals 74,000 acres in the Plan Area. Overall, 23% (17,035 acres) would be conserved under Alternative 3 within the GCP. Existing Conservation would account for 13% of the conservation, BLM LUPA would account for 75%, and Conservation Planning Areas would account for 11%. Additionally, playas and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks. CMAs for playas would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided riparian or wetland natural communities.

Seep/Spring

There are 178 seep/spring locations in the Plan Area under Alternative 3 within the GCP. Overall, 29% (52 locations) of the seep/spring locations would be conserved under Alternative 3 within the GCP. The conservation of seep/spring under Alternative 3 would be below half in all subareas. These include Imperial Borrego Valley (46%, 9 locations), Kingston and Funeral Mountains (17%, 3 locations), Mojave and Silurian Valley (35%, 3 locations), Owens River Valley (17%, 5 locations), Pinto Lucerne Valley and Eastern Slopes (38%, 13 locations), Providence and Bullion Mountains (28%, 3 locations), and West Mojave and Eastern Slopes (27%, 17 locations).

Overall, Existing Conservation would account for 40% of the conservation of seep/spring, BLM LUPA conservation designations would account for 42%, and Conservation Planning Areas would account for 19%. Additionally, seeps and springs and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks. CMAs for seep/spring locations would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided wetland natural communities.

Major Rivers

Overall, 61% of the major rivers would be conserved under Alternative 3 within the GCP, including 25% of the Amargosa River, 33% of the Colorado River, 67% of the Mojave River, and 70% of the Owens River. Conservation Planning Areas would account for 79% of the conservation of the major rivers, Existing Conservation would account for 8%, and BLM LUPA conservation designations would account for 12%. Additionally, major rivers and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks.

Dune and Sand Resources

Overall, 23% (50,000 acres) of dunes and sand resources would be conserved under Alternative 3 within the GCP. Less than 50% of dunes and sand resources would be conserved in all subareas in the Plan Area that contain substantial acreage of dunes and sand resources, including Cadiz Valley and Chocolate Mountains at 31% (22,000 acres), Imperial Borrego Valley at 28% (3,000 acres), Mojave and Silurian Valley at 18% (5,000 acres), Kingston and Funeral Mountains at 21% (2,000 acres), Owens River Valley at 20% (700 acres), Panamint and Death Valley at 31% (1,000 acres), Pinto Lucerne Valley and Eastern Slopes at 19% (3,000 acres), Providence and Bullion Mountains at 18% (8,000 acres) and the West Mojave and Eastern Slopes at 19% (5,000 acres). Additionally, dunes and sand resources and associated Covered Species, natural communities and ecological functions would be avoided through application of the dune avoidance and minimization CMAs.

Environmental Gradients

The conservation analysis addresses four types of environmental gradients in the Plan Area: elevation, landforms, slope, and aspect. The conservation of these four environmental gradients under Alternative 3 within the GCP would follow the same overall pattern as Plan-wide conservation.

Natural Communities

Table IV.7-251 shows the conservation to natural communities under the GCP. A conservation summary by general community is provided below in comparison to Plan-wide conservation discussed in Section IV.7.3.2.1.2. Appendix R2 provides a detailed analysis of natural community conservation by ecoregion subarea.

California forest and woodlands

Overall, approximately 24,000 acres (23%) of California forest and woodlands would be conserved under Alternative 3 under the GCP. The majority of conservation would occur in the West Mojave and Eastern Slopes subarea. Conservation would primarily come from BLM LUPA conservation designations. In addition to conservation of California forest and woodlands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 13,000 acres (16%) of chaparral and coastal scrubs would be conserved under Alternative 3 under the GCP. The majority of conservation would occur in Conservation Planning Areas. In addition to conservation of chaparral and coastal scrubs,

the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert conifer woodlands

Overall, approximately 20,000 acres (20%) of desert conifer woodlands would be conserved under Alternative 3 under the GCP, which is less proportionally than would be conserved Plan-wide. The majority of conservation would occur in the West Mojave and Eastern Slopes subarea. Conservation would primarily come from Conservation Planning Areas. In addition to conservation of desert conifer woodlands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert outcrop and badlands

Overall, approximately 97,000 acres (44%) of desert outcrop and badlands would be conserved under Alternative 3 in the GCP, which is a lesser proportion of available lands than is conserved Plan-wide. The majority of conservation would occur in the Imperial Borrego Valley subarea. Conservation would primarily come from existing conservation. In addition to conservation of desert outcrop and badlands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert scrubs

Overall, approximately 831,000 acres (28%) of desert scrubs would be conserved under Alternative 3 under the GCP, which is a lesser proportion of available lands than is conserved Plan-wide. The majority of conservation would occur in the West Mojave and Eastern Slopes and Imperial Borrego Valley subareas. Conservation would be relatively well distributed among existing conservation areas, BLM LUPA conservation designations, and Conservation Planning Areas. In addition to conservation of desert scrubs, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Dunes

Overall, approximately 8,000 acres (24%) of dunes would be conserved under Alternative 3 under the GCP, which is a lesser proportion of available lands conserved

Plan-wide. Most of the dunes would be conserved in the Mojave and Silurian Valley, Imperial Borrego Valley, Cadiz Valley and Chocolate Mountains, and Kingston and Funeral Mountains subareas. About half of the total conservation would come from Conservation Planning Areas. In addition, CMA application would require avoidance of all dunes and prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

Grasslands

Overall, approximately 27,000 acres (13%) of grasslands would be conserved under Alternative 3 under the GCP, which is a lesser proportion of available lands compared to that conserved Plan-wide. The majority of conservation would occur in the West Mojave and Eastern Slopes subarea. Over half of the conservation would be in Conservation Planning Areas. In addition to conservation of grasslands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Riparian

Overall, approximately 60,000 acres (30%) of riparian communities would be conserved under Alternative 3 under the GCP, which is a lesser proportion of available lands than is conserved Plan-wide. Most of the conservation would occur in the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas. Conservation would come from existing conservation, BLM LUPA conservation designations, and Conservation Planning Areas in almost equal measure. In addition, CMA application would require avoidance of and setbacks from all riparian communities as well as to other CMAs that would benefit riparian communities beyond simply conservation.

Wetlands

Overall, approximately 76,000 acres (23%) of riparian communities would be conserved under Alternative 3 under the GCP, which is a lesser proportion of available lands than is conserved Plan-wide. Most of the conservation would occur in the Imperial Borrego Valley, Owens River Valley, and West Mojave and Eastern Slopes subareas. Conservation would primarily come from BLM LUPA conservation designations. In addition, CMA application would require avoidance of and setbacks from Arid West freshwater emergent marsh and Californian warm temperate marsh/seep as well as other CMAs that would benefit riparian communities beyond simply conservation.

Table IV.7-251
GCP Conservation Analysis for Natural Communities – Alternative 3

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
California forest and woodland						
Californian broadleaf forest and woodland	61,000	800	10,000	800	11,000	19%
Californian montane conifer forest	44,000	7,000	5,000	2,000	13,000	30%
Chaparral and coastal scrub community (Cismontane scrub)						
Californian mesic chaparral	3,000	20	400	200	600	17%
Californian pre-montane chaparral	1,000	0	200	10	200	19%
Californian xeric chaparral	19,000	600	600	3,000	4,000	20%
Central and south coastal California seral scrub	1,000	0	0	50	50	4%
Central and South Coastal Californian coastal sage scrub	42,000	300	2,000	4,000	7,000	16%
Western Mojave and Western Sonoran Desert borderland chaparral	15,000	600	100	800	2,000	10%
Desert conifer woodlands						
Great Basin Pinyon - Juniper Woodland	104,000	7,000	2,000	12,000	20,000	20%
Desert outcrop and badlands						
North American warm desert bedrock cliff and outcrop	220,000	68,000	17,000	11,000	97,000	44%
Desert Scrub						
Arizonan upland Sonoran desert scrub	8,000	3,000	0	800	4,000	49%
Intermontane deep or well-drained soil scrub	24,000	2,000	3,000	2,000	7,000	30%

Table IV.7-251
GCP Conservation Analysis for Natural Communities – Alternative 3

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Intermontane seral shrubland	68,000	500	1,000	3,000	5,000	7%
Inter-Mountain Dry Shrubland and Grassland	152,000	21,000	14,000	6,000	41,000	27%
Intermountain Mountain Big Sagebrush Shrubland and steppe	48,000	1,000	6,000	900	9,000	18%
Lower Bajada and Fan Mojavean - Sonoran desert scrub	2,254,000	246,000	282,000	164,000	691,000	31%
Mojave and Great Basin upper bajada and toeslope	228,000	13,000	13,000	23,000	49,000	21%
Shadscale - saltbush cool semi-desert scrub	157,000	1,000	6,000	18,000	26,000	17%
Southern Great Basin semi-desert grassland	70	0	0	0	0	5%
Dunes						
North American warm desert dunes and sand flats	34,000	800	3,000	4,000	8,000	24%
Grassland						
California Annual and Perennial Grassland	196,000	8,000	5,000	13,000	25,000	13%
California annual forb/grass vegetation	7,000	400	200	1,000	2,000	24%
Riparian						
Madrean Warm Semi-Desert Wash Woodland/Scrub	96,000	3,000	11,000	6,000	21,000	21%
Mojavean semi-desert wash scrub	17,000	3,000	900	2,000	6,000	36%

Table IV.7-251
GCP Conservation Analysis for Natural Communities – Alternative 3

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Riparian	600	20	0	300	300	57%
Sonoran-Coloradan semi-desert wash woodland/scrub	34,000	11,000	4,000	3,000	17,000	51%
Southwestern North American riparian evergreen and deciduous woodland	6,000	400	300	2,000	2,000	42%
Southwestern North American riparian/wash scrub	47,000	3,000	3,000	6,000	13,000	27%
Wetland						
Arid West freshwater emergent marsh	4,000	40	200	1,000	1,000	33%
Californian warm temperate marsh/seep	400	0	0	80	80	20%
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	36,000	2,000	5,000	2,000	9,000	25%
Open Water	114,000	800	600	14,000	16,000	14%
Playa	52,000	20	11,000	300	11,000	22%
Southwestern North American salt basin and high marsh	112,000	3,000	25,000	10,000	38,000	34%
Wetland	8,000	30	200	500	700	9%
Other Land Cover						
Agriculture	693,000	5,000	2,000	4,000	10,000	2%
Developed and Disturbed Areas	399,000	500	2,000	300	2,000	1%
Not Mapped	4,000	50	70	300	400	10%
Rural	110,000	400	3,000	8,000	11,000	10%
Total	**5,420,000**	**412,000**	**440,000**	**329,000**	**1,181,000**	**22%**

[1] Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on nonfederal land

[2] Includes nonfederal inholdings within existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations)

[3] Conservation Planning Areas include areas of the reserve design from which reserve areas would be assembled on private and other public land.

Notes: Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Covered Species Habitat

Table IV.7-252 shows the conservation of Covered Species modeled habitat under Alternative 3 (before the application of CMAs) GCP. Generally, the percent conservation of Covered Species modeled habitat in available lands is highly variable, ranging from 1% for greater sandhill crane (primarily found in agricultural areas) to 63% for Mohave tui chub.

Conservation percentages are in large part related to the location and types of habitat modeled for the Covered Species. For example, modeled habitat for greater sandhill crane, which is primarily freshwater wetland and agriculture, is limited to the Palo Verde and Imperial valleys and is mostly within DFAs.

Much of the modeled habitats for desert tortoise and Mojave fringe-toed lizard are in the Mojave Desert in areas that occur in the BLM LUPA conservation designations. Flat-tailed horned lizard modeled habitat is only conserved in the Imperial Borrego Valley, mostly in Conservation Planning Areas. Tehachapi slender salamander modeled habitat occurs in the Tehachapi Mountains where conservation is primarily composed of BLM LUPA conservation designations. Furthermore, the siting of the DFAs under Alternative 3 largely avoid habitat for Mojave fringe-toed lizard and Tehachapi slender salamander, and CMAs require avoidance of and setbacks from riparian habitat, wetland habitat, and dune habitat would further avoid and minimize the impacts on these species.

Conservation of bird species associated primarily with wetland and riparian habitats, including California black rail, least Bell's vireo, southwestern willow flycatcher, tricolored blackbird, western yellow-billed cuckoo, and Yuma clapper rail would be augmented by CMAs requiring avoidance of and setbacks from riparian and wetland habitats. Conservation of Bendire's thrasher occurs in nearly every subarea of the Plan Area, but is mainly in BLM LUPA conservation designations. Burrowing owl, widespread, but mainly associated with open areas in the West Mojave and Eastern Slopes would primarily be conserved in BLM LUPA conservation designations and existing conservation areas.

California condor mainly occurs in the West Mojave and Eastern Slopes subarea so the majority of conservation is also in this subarea. Golden eagle modeled suitable habitat and associated conservation is widespread in the Plan Area with most of the conservation in BLM LUPA conservation designations and existing conservation areas. Swainson's hawk is primarily associated with the West Mojave and Eastern Slopes, Imperial Borrego Valley, and Owens River Valley subareas; of these subareas, over 20% of suitable habitat is conserved only in the Owens River Valley subarea. In addition to conservation of suitable habitat, CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs.

About half of the modeled suitable habitat for Gila woodpecker is conserved in the Imperial Borrego Valley in existing conservation areas. Conservation of mountain plover suitable habitat is mostly in Conservation Planning Areas in the West Mojave and Eastern Slopes subarea.

Conservation of suitable habitat for desert pupfish and Mohave tui chub is mostly in existing conservation areas. Although conservation of desert pupfish is relatively low especially in the Imperial Borrego Valley subarea, avoidance and setback provisions for managed wetlands and agricultural drains would conserve wetland and riparian features within the agricultural matrix and provide conservation benefits to desert pupfish. Owens pupfish and Owens tui chub are conserved primarily in Conservation Planning Areas.

Conservation of suitable habitat for bighorn sheep, both inter-mountain and mountain habitat, is widespread and is mainly in BLM LUPA conservation designations. The siting of the DFAs under Alternative 3 largely avoid habitat for bighorn sheep. At least about half of the conservation of burro deer and Mojave ground squirrel suitable habitat is from BLM LUPA conservation designations. Conservation of desert kit fox is mainly conserved in existing conservation areas and BLM LUPA conservation designations. Suitable habitat for the covered bat species—California leaf-nosed bat, pallid bat, and Townsend's big-eared bat—is widespread and mainly conserved in BLM LUPA conservation designations. In addition to conservation of suitable habitat for covered mammal species, the CMAs require avoidance of and setbacks from riparian and wetland habitat that would reduce impacts on these habitats used by Mohave ground squirrel, California leaf-nosed bat, pallid bat, and Townsend's big-eared bat.

Conservation of plant species ranges from 7% of suitable habitat for alkali mariposa-lily to 43% of suitable habitat for triple-ribbed milk-vetch. The proportion of suitable habitat conserved in existing conservation, BLM LUPA conservation designations, and Conservation Planning Areas varies by species. However, in addition to the conservation of modeled suitable habitat, the CMAs require surveys for plant Covered Species for all Covered Activities, and the CMAs requiring avoidance of and setbacks from occupied habitat would further reduce the impacts on these species.

In addition to conservation of suitable habitat for Covered Species, compensation CMAs would offset habitat loss for all Covered Species.

Table IV.7-252
GCP Conservation Analysis for Covered Species Habitat – Alternative 3

Species	Available Lands (acres)	Existing Conservation[1] (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Amphibian/Reptile						
Agassiz's desert tortoise	2,248,000	140,000	296,000	184,000	620,000	28%
Flat-tailed horned lizard	310,000	112,000	20,000	3,000	135,000	44%
Mojave fringe-toed lizard	168,000	3,000	20,000	11,000	34,000	20%
Tehachapi slender salamander	41,000	300	7,000	700	8,000	19%
Bird						
Bendire's thrasher	405,000	35,000	31,000	26,000	92,000	23%
Burrowing owl	3,244,000	73,000	221,000	192,000	486,000	15%
California black rail	127,000	5,000	600	6,000	11,000	9%
California condor	997,000	43,000	43,000	50,000	137,000	14%
Gila woodpecker	56,000	4,000	600	1,000	6,000	10%
Golden eagle–foraging	1,498,000	154,000	202,000	109,000	465,000	31%
Golden eagle–nesting	676,000	108,000	69,000	42,000	219,000	32%
Greater sandhill crane	601,000	5,000	500	1,000	7,000	1%
Least Bell's vireo	104,000	9,000	7,000	18,000	33,000	31%
Mountain plover	811,000	6,000	2,000	14,000	23,000	3%
Southwestern willow flycatcher	258,000	6,000	13,000	17,000	36,000	14%
Swainson's hawk	1,339,000	15,000	27,000	70,000	112,000	8%
Tricolored blackbird	257,000	6,000	2,000	18,000	27,000	10%
Western yellow-billed cuckoo	111,000	2,000	5,000	23,000	30,000	28%
Yuma clapper rail	31,000	3,000	10	2,000	5,000	16%

Table IV.7-252
GCP Conservation Analysis for Covered Species Habitat – Alternative 3

Species	Available Lands (acres)	Existing Conservation[1] (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Fish						
Desert pupfish	7,000	800	10	200	1,000	14%
Mohave tui chub	100	70	-	20	90	63%
Owens pupfish	13,000	-	600	3,000	4,000	30%
Owens tui chub	13,000	-	600	3,000	4,000	30%
Mammal						
Bighorn sheep – inter-mountain habitat	465,000	40,000	52,000	23,000	115,000	25%
Bighorn sheep – mountain habitat	807,000	149,000	67,000	56,000	271,000	34%
California leaf-nosed bat	979,000	137,000	108,000	48,000	294,000	30%
Mohave ground squirrel	1,319,000	51,000	187,000	152,000	390,000	30%
Pallid bat	3,775,000	393,000	394,000	271,000	1,058,000	28%
Townsend's big-eared bat	3,510,000	308,000	363,000	252,000	922,000	26%
Plant						
Alkali mariposa-lily	117,000	200	70	8,000	8,000	7%
Bakersfield cactus	200,000	17,000	12,000	12,000	41,000	21%
Barstow woolly sunflower	82,000	3,000	22,000	12,000	37,000	45%
Desert cymopterus	137,000	2,000	29,000	18,000	49,000	36%
Little San Bernardino Mountains linanthus	130,000	5,000	6,000	5,000	16,000	12%
Mojave monkeyflower	41,000	100	13,000	700	14,000	34%
Mojave tarplant	129,000	19,000	12,000	4,000	35,000	27%
Owens Valley checkerbloom	92,000	200	2,000	17,000	20,000	22%

Table IV.7-252
GCP Conservation Analysis for Covered Species Habitat – Alternative 3

Species	Available Lands (acres)	Existing Conservation[1] (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Parish's daisy	72,000	19,000	8,000	2,000	28,000	39%
Triple-ribbed milk-vetch	3,000	900	10	400	1,000	43%

1 Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on nonfederal land

2 Includes nonfederal inholdings within existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations)

3 Conservation Planning Areas include areas of the reserve design from which reserve areas would be assembled on private and other public land.

Notes: Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For Agassiz's desert tortoise, desert tortoise important areas were identified that include tortoise conservation areas (TCAs), desert tortoise linkages, and desert tortoise high priority habitat (see desert tortoise BGOs in Appendix C). Table IV.7-253 provides a conservation analysis for these desert tortoise important areas, organized by desert tortoise Recovery Units: Colorado Desert, Eastern Mojave, and Western Mojave. Within the Colorado Desert Recovery Unit, 26% of TCAs, linkage habitat, and high priority habitat would be conserved under Alternative 3. Within the Eastern Mojave Recovery Unit, 26% of the important areas would be conserved Alternative 3. Within the Western Mojave Recovery Unit, 35% of TCAs and linkage habitat would be conserved under Alternative 3. CMAs would require avoidance of TCAs, except for impacts associated with transmission or impacts in disturbed portions of TCAs. Additionally, the CMAs would prohibit impacts that affect the viability of desert tortoise linkages. Compensation CMAs would be required for impacts to desert tortoise, including desert tortoise important areas.

Table IV.7-253
GCP Conservation Analysis for Desert Tortoise Important Areas – Alternative 3

Recovery Unit	Desert Tortoise Important Areas	Available Lands (acres)	Existing Conservation[1] (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Colorado Desert	High Priority Habitat	31,000	800	7,000	3,000	11,000	35%
	Linkage	63,000	100	9,000	4,000	13,000	20%
	TCA	269,000	16,000	41,000	14,000	71,000	26%
Colorado Desert Total		**363,000**	**17,000**	**56,000**	**21,000**	**94,000**	**26%**
Eastern Mojave	Linkage	56,000	4,000	4,000	7,000	14,000	25%
	TCA	66,000	6,000	3,000	8,000	18,000	27%
Eastern Mojave Total		122,000	10,000	7,000	15,000	32,000	26%
Western Mojave	Linkage	407,000	2,000	30,000	25,000	57,000	14%
	TCA	392,000	23,000	191,000	7,000	221,000	56%
Western Mojave Total		**798,000**	**25,000**	**222,000**	**32,000**	**278,000**	**35%**
Grand Total		**1,283,000**	**52,000**	**285,000**	**67,000**	**404,000**	**32%**

1 Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on nonfederal land

2 Includes nonfederal inholdings within existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations)

3 Conservation Planning Areas include areas of the reserve design from which reserve areas would be assembled on private and other public land.

Notes: Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For Mohave ground squirrel, Mohave ground squirrel important areas were identified that include key population centers, linkages, expansion areas, and climate change extension areas (see Mohave ground squirrel BGOs in Appendix C). Table IV.7-254 provides a conservation analysis for these Mohave ground squirrel important areas. Approximately 44% of key population centers and 51% of linkages would be conserved under Alternative 3. Expansion areas and climate change extension areas would be conserved at 51% and 32% respectively. The CMAs would prohibit impacts that affect the viability of linkages. Compensation CMAs would be required for impacts to Mohave ground squirrel, including Mohave ground squirrel important areas.

Table IV.7-254
GCP Conservation Analysis for Mohave Ground Squirrel Important Areas – Alternative 3

Mohave Ground Squirrel Important Area Type	Available Lands (acres)	Existing Conservation[1] (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Key Population Center	193,000	14,000	44,000	27,000	84,000	44%
Linkage	103,000	3,000	28,000	21,000	52,000	51%
Expansion Area	258,000	21,000	60,000	52,000	133,000	51%
Climate Change Extension	131,000	13,000	5,000	24,000	41,000	32%
Total	**684,000**	**50,000**	**136,000**	**124,000**	**310,000**	**45%**

1 Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on nonfederal land

2 Includes nonfederal inholdings within existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations)

3 Conservation Planning Areas include areas of the reserve design from which reserve areas would be assembled on private and other public land.

Notes: Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Within the Plan Area, critical habitat has been designated by the USFWS for the following Covered Species: desert tortoise, southwestern willow flycatcher, desert pupfish, and Parish's daisy. For desert tortoise, approximately 44% of the desert tortoise designated critical habitat on nonfederal lands would be conserved under Alternative 3, including 30,000 acres in existing conservation areas, 198,000 acres in BLM LUPA conservation designations, and 14,000 acres in Conservation Planning Areas. For southwestern willow flycatcher, approximately 60% of the southwestern willow flycatcher designated critical habitat on nonfederal lands would be conserved in Reserve Design Lands under Alternative 3, including 600 acres in existing conservation areas, 30 acres in BLM LUPA conservation designations, and 3,000 acres in Conservation Planning Areas. For desert pupfish, approximately 76% of the desert pupfish designated critical habitat on nonfederal lands would be conserved in Reserve Design Lands under Alternative 3, including 100 acres in existing conservation areas and 100 acres in BLM LUPA conservation designations. For Parish's daisy, approximately 36% of the Parish's daisy designated critical habitat on

nonfederal lands would be conserved in Reserve Design Lands under Alternative 3, including 200 acres in BLM LUPA conservation designations.

Non-Covered Species Critical Habitat

Eight Non-Covered Species have Critical Habitat within GCP Lands. Table IV.7-255 shows the total amount of Critical Habitat and the amount within each reserve designation for Non-Covered Species. These reserve designations are considered beneficial impacts for biological resources. All or a substantial portion of each species' Critical Habitat in the GCP Lands would be within one of the conservation designations. Critical Habitat for bighorn sheep occurs mostly within existing conservation and within Conservation Planning Areas for arroyo toad, but mostly within nonfederal inholdings on BLM land for the other species.

Table IV.7-255
Critical Habitat within GCP Lands for Non-Covered Species – Alternative 3

Common Name	Acres of Critical Habitat within GCP Lands	Acres of Critical Habitat in Existing Conservation	Acres of Critical Habitat in BLM LUPA Lands (Nonfederal Inholdings)	Acres of Critical Habitat in Conservation Planning Areas	Acres in Conservation
Amargosa vole	600	0	300	0	300
Arroyo toad	4,000	0	20	3,000	3,020
Cushenbury buckwheat	200	0	100	0	100
Cushenbury milk-vetch	200	0	100	0	100
Cushenbury oxytheca	30	0	30	0	30
Lane Mountain milk-vetch	2,000	0	2,000	0	2,000
Pierson's milk-vetch	400	0	0	400	400
Peninsular Bighorn sheep	40,000	36,000	0	300	36,300

IV.7.3.5.5 Impacts Outside of Plan Area

IV.7.3.5.5.1 Impacts of Transmission Out of Plan Area

The impacts of Out of Plan Area transmission on biological resources would be the same under all alternatives. These impacts are as described for the No Action Alternative in Section IV.7.3.1.6.1 (Impacts of Transmission Out of Plan Area in No Action Alternative).

IV.7.3.5.5.2 Impacts of BLM LUPA Decisions Outside of Plan Area

Natural Communities and Other Land Covers

There are 1,057,874 acres of natural communities in BLM LUPA lands outside the plan area. Of these, 172,179 acres would be proposed NLCS lands and 266,088 would be existing and proposed ACECs, for a total of 317,641 acres (accounting for overlapping designations) of natural communities in BLM LUPA conservation under Alternative 3.

Table IV.7-256
Estimated Acres of Natural Communities in BLM LUPA Outside of Plan Area – Alternative 3

Natural Communities	Natural Communities within BLM LUPA Lands Outside Plan Area (acres)	BLM LUPA Designation†		Total Natural Communities in BLM LUPA Conservation (acres)
		Proposed NLCS (acres)	*Existing & Proposed ACECs (acres)*	
Dune/Rocky, Barren, and Un-vegetated Communities				
Barren	23,402	506	2,841	3,139
Forest/Woodland Communities				
Closed-Cone Pine-Cypress	287	0	231	231
Jeffrey Pine	27	0	0	0
Juniper	31,590	217	6,963	6,975
Montane Hardwood	282	0	0	0
Pinyon-Juniper	73,444	7,821	10,089	11,237
Ponderosa Pine	1,445	0	0	0
Sierran Mixed Conifer	120	0	0	0
Subalpine Conifer	189	0	0	0
Grassland Communities				
Annual Grassland	6,353	0	0	0
Riparian/Wetland Communities				
Desert Riparian	205	2	205	205
Desert Wash	22,414	5,653	9,106	9,169

Table IV.7-256
Estimated Acres of Natural Communities in BLM LUPA Outside of Plan Area – Alternative 3

Natural Communities	Natural Communities within BLM LUPA Lands Outside Plan Area (acres)	BLM LUPA Designation†		Total Natural Communities in BLM LUPA Conservation (acres)
		Proposed NLCS (acres)	*Existing & Proposed ACECs (acres)*	
Freshwater Emergent Wetland	952	877	0	877
Lacustrine	99	0	19	19
Scrub and Chaparral Communities				
Alkali Desert Scrub	189,771	19,946	10,689	24,156
Chamise-Redshank Chaparral	8,317	2,345	4,117	5,461
Coastal Scrub	12	0	0	0
Desert Scrub	572,907	115,348	208,440	231,431
Desert Succulent Shrub	35,115	2,868	957	3,311
Joshua Tree	21,034	2,399	2,135	2,820
Low Sage	3,035	2,995	895	2,995
Mixed Chaparral	12,821	2,950	5,465	7,209
Sagebrush	48,566	7,989	3,673	8,143
Other Land Covers				
Cropland	3,617	0	0	0
Irrigated Hayfield	421	0	0	0
Urban	1,449	263	263	263
Total	**1,057,874**	**172,179**	**266,088**	**317,641**

Source: State of California GAP GIS data for vegetation classifications (CDFG 1998).

Special-Status Species

Many special-status species are known to occur within proposed or existing conservation areas within the BLM LUPA lands outside of the Plan Area. See Table IV.7-257 below for the list of special-status species within conservation areas. Refer to Table IV.7-256 above to see the natural communities present within the conservation areas that provide habitat for these species. Table IV.7-50 provides a cross-walk for the special-status species and the natural communities that provide habitat for these species.

In order to analyze how the preservation and conservation of the BLM LUPA lands outside of the Plan Area will affect the special-status species listed below, the preferred BLM LUPA conservation land boundaries within the CDCA but outside of the DRECP plan area were

applied to the species' occurrence data available from CNDDB. Based on this analysis, Alternative 3 is expected to beneficially affect the 93 species shown in Table IV.7-257 that are known to occur within the NLCS and ACECs on BLM LUPA lands outside of the Plan Area, and the natural communities that provide habitat for these species shown in Table IV.7-256 above. Under Alternative 3, 58 species, dominated by plant species, are not present within existing and proposed BLM LUPA conservation lands.

Table IV.7-257
Special-Status Species Occurring in BLM LUPA Outside of Plan Area – Alternative 3

Special-Status Species Present	Federal Status[1]	State Status[2]	Present in BLM LUPA Conservation Lands (Proposed NLCS and Existing and Proposed ACECs)
Amphibians/Reptiles			
Agassiz's desert tortoise	FT	ST	Y
Arroyo toad	FE	CSC	Y
Barefoot gecko	BLM	ST	Y
Coast horned lizard	-	CSC	Y
Coachella fringe-toed lizard	FE	SC	Y
Couch's spadefoot	BLM	CSC	N
flat-tailed horned lizard	BLM, FS	CSC	Y
Rosy boa	BLM, FS	-	Y
Sierra Madre yellow-legged frog	FE	SC, CSC	Y
Fish			
desert pupfish	FE	SE	Y
Mohave tui chub	FE	SE	Y
Birds			
burrowing owl	-	CSC	Y
California black rail	BLM, BCC	ST	Y
Crissal thrasher	BLM, BCC	CSC	N
Gray vireo	BLM, BCC	CSC	N
golden eagle	BGEPA	FP	Y
Inyo California towhee	FT	SE	Y
Le Conte's thrasher	BLM	CSC	Y
Least Bell's vireo	FE	SE	N
Loggerhead shrike	BCC	CSC	N
Long-eared owl	BLM	CSC	Y
prairie falcon	BCC	-	Y
Swainson's hawk	BLM	ST	N
southwestern willow flycatcher	FE	SE	Y
Vermilion flycatcher	-	CSC	N

Table IV.7-257
Special-Status Species Occurring in BLM LUPA Outside of Plan Area – Alternative 3

Special-Status Species Present	Federal Status[1]	State Status[2]	Present in BLM LUPA Conservation Lands (Proposed NLCS and Existing and Proposed ACECs)
western snowy plover	FT	CSC	Y
Yellow warbler	BCC	CSC	Y
Yuma clapper-rail	FE, BCC	ST, FP	Y
Mammals			
American badger	-	CSC	Y
big free-tailed bat	-	CSC	N
Hoary bat	-	WBWG	Y
Long-eared myotis	BLM	-	N
Mojave ground squirrel	-	ST	Y
Nelson's bighorn sheep	BLM	-	Y
Palm Springs pocket mouse	BLM	CSC	Y
pallid bat	BLM	CSC	Y
Peninsular bighorn sheep	FE, BLM	ST, FP	Y
pocketed free-tailed bat	-	CSC	N
Spotted bat	BLM	CSC	Y
Townsend's big-eared bat	BLM	CSC	Y
Western mastiff bat	BLM	CSC	N
Western small-footed myotis	BLM	-	Y
western yellow bat	-	CSC	N
Plants			
Abrams' spurge	-	(CRPR 2.2)	N
Amargosa beardtongue	BLM	(CRPR 1B.3)	Y
annual rock-nettle	-	(CRPR 2.2)	Y
Arizona pholistoma	-	(CRPR 2.3)	Y
Arizona spurge	-	(CRPR 2.3)	Y
Ash Meadows buckwheat	-	(CRPR 2.3)	N
Bailey's greasewood	-	(CRPR 2.3)	Y
Barneby's phacelia	-	(CRPR 2.3)	N
black bog-rush	-	(CRPR 2.2)	N
bristly scaleseed	-	(CRPR 2.3)	N
brown turbans	-	(CRPR 2.3)	Y
California ayenia	-	(CRPR 2.3)	N
California satintail	-	(CRPR 2.1)	Y
California saw-grass	-	(CRPR 2.2)	Y
chaparral sand-verbena	-	(CRPR 1B.1)	Y

Table IV.7-257
Special-Status Species Occurring in BLM LUPA Outside of Plan Area – Alternative 3

Special-Status Species Present	Federal Status[1]	State Status[2]	Present in BLM LUPA Conservation Lands (Proposed NLCS and Existing and Proposed ACECs)
Charlotte's phacelia	BLM	(CRPR 1B.2)	Y
Chimney Creek nemacladus	-	(CRPR 1B.2)	N
Coachella Valley milk-vetch	FE	(CRPR 1B.2)	Y
Cove's cassia	-	(CRPR 2.2)	Y
creamy blazing star	-	(CRPR 1B.3)	Y
curly herissantia	-	(CRPR 2.3)	Y
Cushenbury buckwheat	FE	(CRPR 1B.1)	N
Cushenbury oxytheca	FE	(CRPR 1B.1)	N
Death Valley sandpaper-plant	-	(CRPR 1B.2)	Y
Dedecker's clover	-	(CRPR 1B.3)	N
desert beauty	-	(CRPR 2.3)	N
desert spike-moss	-	(CRPR 2.2)	Y
dwarf germander	-	(CRPR 2.2)	N
Emory's crucifixion-thorn	-	(CRPR 2.2)	N
forked buckwheat	-	(CRPR 1B.2)	N
Geyer's milk-vetch	-	(CRPR 2.2)	N
Gilman's buckwheat	-	(CRPR 1B.3)	N
Gilman's cymopterus	-	(CRPR 2.3)	N
Gilman's goldenbush	-	(CRPR 1B.3)	N
glandular ditaxis	-	(CRPR 2.2)	N
Greene's rabbitbrush	-	(CRPR 2.3)	N
hairy stickleaf	-	(CRPR 2.3)	Y
Hall's daisy	-	(CRPR 1B.3)	N
Harwood's milk-vetch	-	(CRPR 2.2)	Y
Hoffmann's buckwheat	-	(CRPR 1B.3)	Y
Holmgren's lupine	-	(CRPR 2.3)	N
Inflated Cima milk-vetch	-	(CRPR 1B.3)	Y
intermontane lupine	-	(CRPR 2.3)	Y
Inyo blazing star	-	(CRPR 1B.3)	Y
Inyo County star-tulip	-	(CRPR 1B.1)	N
Inyo rock daisy	-	(CRPR 1B.2)	Y
jackass-clover	-	(CRPR 2.2)	Y
Jacumba milk-vetch	-	(CRPR 1B.2)	N
July gold	-	(CRPR 1B.3)	N
Kelso Creek monkeyflower	BLM	(CRPR 1B.2)	Y

Table IV.7-257
Special-Status Species Occurring in BLM LUPA Outside of Plan Area – Alternative 3

Special-Status Species Present	Federal Status[1]	State Status[2]	Present in BLM LUPA Conservation Lands (Proposed NLCS and Existing and Proposed ACECs)
Kern Plateau bird's-beak	-	(CRPR 1B.3)	N
Kern River evening-primrose	-	(CRPR 1B.3)	Y
King's eyelash grass	-	(CRPR 2.3)	Y
knotted rush	-	(CRPR 2.3)	N
Lancaster milk-vetch	-	(CRPR 1B.1)	N
Las Animas colubrina	-	(CRPR 2.3)	Y
Latimer's woodland-gilia	-	(CRPR 1B.2)	Y
little-leaf elephant tree	-	(CRPR 2.3)	N
long-stem evening-primrose	-	(CRPR 2.2)	N
Mexican hulsea	-	(CRPR 2.3)	Y
Mormon needle grass	-	(CRPR 2.3)	N
Mountain Springs bush lupine	-	(CRPR 1B.3)	Y
Muir's tarplant	-	(CRPR 1B.3)	N
Nevada oryctes	-	(CRPR 2.1)	N
Nine Mile Canyon phacelia	-	(CRPR 1B.2)	Y
Orcutt's linanthus	-	(CRPR 1B.3)	Y
Orcutt's woody-aster	-	(CRPR 1B.2)	Y
Orocopia sage	BLM	(CRPR 1B.3)	Y
Owen's Valley checkerbloom	BLM	SE (CRPR 1B.1)	Y
Owens Peak lomatium	-	(CRPR 1B.3)	N
Palmer's mariposa-lily	-	(CRPR 1B.2)	N
Panamint daisy	-	(CRPR 1B.2)	Y
Panamint dudleya	-	(CRPR 1B.3)	Y
Panamint Mountains buckwheat	-	(CRPR 1B.3)	Y
Panamint Mountains lupine	-	(CRPR 1B.2)	Y
Panamint rock-goldenrod	-	(CRPR 2.3)	Y
Parish's daisy	FT	(CRPR 1B.1)	Y
Parish's desert-thorn	-	(CRPR 2.3)	Y
Parry's monkeyflower	-	(CRPR 2.3)	N
Parry's spineflower	-	(CRPR 1B.1)	Y
Pierson's milk-vetch	FT	SE	N
pink fairy-duster	-	(CRPR 2.3)	Y
Pinyon Mesa buckwheat	-	(CRPR 1B.3)	Y
pinyon rockcress	-	(CRPR 2.3)	Y

Table IV.7-257
Special-Status Species Occurring in BLM LUPA Outside of Plan Area – Alternative 3

Special-Status Species Present	Federal Status[1]	State Status[2]	Present in BLM LUPA Conservation Lands (Proposed NLCS and Existing and Proposed ACECs)
prairie wedge grass	-	(CRPR 2.2)	Y
pygmy lotus	-	(CRPR 1B.3)	Y
Ripley's aliciella	-	(CRPR 2.3)	Y
Robison's monardella	-	(CRPR 1B.3)	Y
Robbins' nemacladus	-	(CRPR 1B.2)	N
San Bernardino aster	-	(CRPR 1B.2)	Y
San Bernardino milk-vetch	-	(CRPR 1B.2)	Y
San Diego button-celery	FE	SE, (CRPR 1B.1)	Y
sanicle cymopterus	-	(CRPR 1B.2)	N
Santa Rosa Mountains leptosiphon	-	(CRPR 1B.3)	N
Shockley's milk-vetch	-	(CRPR 2.2)	N
Shockley's rockcress	-	(CRPR 2.2)	Y
slender cottonheads	-	(CRPR 2.2)	N
slender-leaved ipomopsis	-	(CRPR 2.3)	Y
southern jewel-flower	-	(CRPR 1B.3)	N
Spanish needle onion	BLM	(CRPR 1B.3)	N
spear-leaf matelea	-	(CRPR 2.3)	Y
spiny-hair blazing star	-	(CRPR 2.1)	Y
sticky geraea	-	(CRPR 2.3)	Y
sweet-smelling monardella	-	(CRPR 1B.3)	N
triple –ribbed milk-vetch	FE	(CRPR 1B.2)	Y
Wheeler's dune-broom	-	(CRPR 2.2)	N
white-bracted spineflower	-	(CRPR 1B.2)	Y
Wildrose Canyon buckwheat	-	(CRPR 1B.3)	Y
yellow ivesia	-	(CRPR 2.3)	N

Notes:
CRPR = California Rare Plant Rank; Y = yes, present; N = not present

[1] Federal Status – FE: Federally Endangered; FT: Federally Threatened; FD: Federally Delisted; FS: Forest Service Sensitive; BLM: Bureau Land Management Sensitive; BCC: Service Bird of Conservation Concern; BGEPA: Bald and Golden Eagle Protection Act.

[2] State Status – SE: California Endangered; ST: California Threatened; SC: California Candidate for listing; CSC: California Species of Concern; FP: Fully Protected; WBWG: Western Bat Working Group species. California Rare Plant Rank (CRPR, formerly known as the CNPS List) - CRPR 1B: Considered rare, threatened, or endangered in California and elsewhere; CRPR 2: Considered rare, threatened, or endangered in California, but more common elsewhere; CRPR 3: Plants which need more information; CRPR 4: Limited distribution – a watch list.

Critical Habitat for Special-status Species

Six Special-status Species have Critical Habitat within BLM Lands outside the Plan Area. Table IV.7-258 shows the total amount of Critical Habitat and the amount within each BLM land designation for each species. No Critical Habitat for the least Bell's vireo would occur within BLM Conservation Designation. The largest portion of Critical Habitat for the remaining species would be within Areas of Critical Environmental Concern, with additional amounts within National Conservation Lands, with both designations providing specific protections for biological resources. Critical Habitat for all species except Coachella Valley fringe-toed lizard and least Bell's vireo would occur within Special Recreation Management Areas, which would also be managed to protect Critical Habitat.

Table IV.7-258
Critical Habitat within BLM LUPA Conservation Designations for Special-Status Species – Alternative 3

Common Name	Acres of Critical Habitat within BLM LUPA Lands	NLCS (acres)	ACEC (acres)	SRMA (acres)	Total[1] in BLM Designations
Coachella Valley milk-vetch	10,000	500	500	1,000	2,000
Inyo California towhee	2,000	20	800	500	1,320
Peninsular Bighorn sheep	317,000	0	9,000	200	9,200
Coachella Valley fringe-toed lizard	12,000	2,000	2,000	0	4,000
Desert tortoise	173,000	30,000	99,000	55,000	184,000
Least Bell's vireo	600	0	0	0	0

[1] Includes overlapping designations

Landscape Habitat Linkages and Wildlife Movement Corridors

As detailed in Vol. III.7.13.2.4, Landscape Habitat Linkages and Wildlife Movement Corridors, there are important linkages and corridors North of the Plan Area within the Owens Valley, and Inyo Mountains, and Southwest of the Plan Area within and adjacent to the Coachella Valley. The NCLS lands and ACECs proposed for Alternative 3 offer protection at critical locations within these corridors, providing a benefit to Landscape Habitat Linkages and Wildlife Movement Corridors outside of the Plan Area.

IV.7.3.5.6 CEQA Significance Determination for Alternative 3

Impact BR-1: Siting, construction, decommissioning, and operational activities would result in loss of native vegetation.

Alternative 3 would result in loss of native vegetation that would be an adverse impact to natural communities and the species these communities support. These impacts would be concentrated in the Cadiz Valley and Chocolate Mountains, Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas and would predominantly impact desert scrubs, wetlands, grasslands, and desert outcrop and badlands. The adverse effects of the loss of native vegetation would be avoided and minimized through the implementation of avoidance and minimization CMAs and compensation CMAs established to offset the impacts of Covered Activities. These CMAs would contribute to the overall DRECP conservation strategy, which includes conservation within Reserve Design Lands and a coordinated Monitoring and Adaptive Management Program. Implementation of the CMAs as part of the overall DRECP conservation strategy, plus implementation of Mitigation Measure BR-1a for rare natural communities, would reduce the adverse effects from the loss of native vegetation to a less than significant impact with mitigation.

Impact BR-2: Siting, construction, decommissioning, and operational activities would result in adverse effects to jurisdictional waters and wetlands.

Alternative 3 would result in adverse effects to jurisdictional waters and wetlands. These impacts would occur in saltbush scrub and playa natural communities determined to be jurisdictional and open water areas of the Salton Sea. The adverse effects to jurisdictional waters and wetlands would be avoided and minimized through the implementation existing applicable laws and regulations, through implementation of avoidance and minimization CMAs, and through compensation CMAs established to offset the impacts of Covered Activities. These CMAs would contribute to the overall DRECP conservation strategy, which includes conservation within Reserve Design Lands and a coordinated Monitoring and Adaptive Management Program. Implementation of the CMAs as part of the overall DRECP conservation strategy would reduce the adverse effects to jurisdictional waters and wetlands to a less than significant impact.

Impact BR-3: Siting, construction, decommissioning, and operational activities would result in degradation of vegetation.

Alternative 3 would result in degradation of vegetation that would be an adverse impact to natural communities and the species these communities support. These impacts would be concentrated in the Cadiz Valley and Chocolate Mountains, Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas and would predominantly impact desert scrubs, wetlands, grasslands, and desert outcrop and badlands. The adverse

effects of vegetation degradation would be avoided and minimized through the implementation of avoidance and minimization CMAs and compensation CMAs established to offset the impacts of Covered Activities. These CMAs would contribute to the overall DRECP conservation strategy, which includes conservation within Reserve Design Lands and a coordinated Monitoring and Adaptive Management Program. Implementation of the CMAs as part of the overall DRECP conservation strategy would reduce the adverse effects of degradation of vegetation to a less than significant impact.

Impact BR-4: Siting, construction, decommissioning, and operational activities would result in loss of listed and sensitive plants; disturbance, injury, and mortality of listed and sensitive wildlife; and habitat for listed and sensitive plants and wildlife.

Alternative 3 would result in an adverse impact to listed and sensitive plants and wildlife and habitat for listed and sensitive plant and wildlife. These impacts would be concentrated in the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, Pinto Lucerne Valley and Eastern Slopes, and West Mojave and Eastern Slopes subareas. The adverse effects plant and wildlife species loss and habitat loss would be avoided and minimized through the implementation of avoidance and minimization CMAs and compensation CMAs established to offset the impacts of Covered Activities. These CMAs would contribute to the overall DRECP conservation strategy, which includes conservation within Reserve Design Lands and a coordinated Monitoring and Adaptive Management Program. Implementation of the CMAs as part of the overall DRECP conservation strategy would reduce the adverse effects from the loss plants and wildlife and their habitat to a less than significant impact.

Implementation of the CMAs as part of the overall DRECP conservation strategy would also reduce the adverse effects from the loss of plant and wildlife Non-Covered Species and their habitat to a less than significant impact.

Impact BR-5: Siting, construction, decommissioning, and operational activities could result in loss of nesting birds (violation of the federal Migratory Bird Treaty Act and California Fish and Game Code Sections 3503, 3503.5, 3511, and 3513).

Alternative 3 has the potential to result in an adverse impact resulting from the loss of nesting birds. These impacts have the potential to occur anywhere Covered Activities are implemented. This potential adverse would be avoided and minimized through the implementation of avoidance and minimization CMAs developed to comply with existing applicable laws and regulations related to nesting birds. Implementation of the CMAs would reduce the potential adverse effects of the loss of nesting birds to a less than significant impact.

Impact BR-6: Siting, construction, decommissioning, and operational activities would adversely affect habitat linkages and wildlife movement corridors, the movement of fish, and native wildlife nursery sites.

Alternative 3 would result in adverse impacts to habitat linkages and wildlife movement corridors. These impacts to habitat linkages and movement of migratory birds would be concentrated in the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas. The potential adverse effects to habitat linkages and wildlife movement would avoided and minimized through the implementation of the DRECP conservation strategy, including the reserve design envelope and the Monitoring and Adaptive Management Program. Additionally, impacts of habitat fragmentation and population isolation would be avoided and minimized through requiring renewable energy development to occur within DFAs and through the implementation of avoidance and minimization CMAs and compensation CMAs established to offset the impacts of Covered Activities. Implementation of the CMAs as part of the overall DRECP conservation strategy would reduce the adverse effects on habitat linkages and wildlife movement to a less than significant impact.

Impact BR-7: Siting, construction, decommissioning, and operational activities would result in habitat fragmentation and isolation of populations of listed and sensitive plants and wildlife.

Alternative 3 would have the potential to result in adverse impacts of habitat fragmentation and population isolation. The potential adverse effects of habitat fragmentation and population isolation would avoided and minimized through the implementation of the DRECP conservation strategy, including the reserve design envelope and the Monitoring and Adaptive Management Program. Additionally, impacts of habitat fragmentation and population isolation would be avoided and minimized through requiring renewable energy development to occur within DFAs and through the implementation of avoidance and minimization CMAs and compensation CMAs established to offset the impacts of Covered Activities. Implementation of the DRECP and the CMAs as part of the overall DRECP conservation strategy would reduce the adverse effects of habitat fragmentation and population isolation to a less than significant impact.

Impact BR-8: Construction of generation facilities or transmission lines would result in increased predation of listed and sensitive wildlife species.

Alternative 3 would result in an increase in predator populations in the Plan Area, which would adversely affect susceptible Covered Species. As part of the overall DRECP conservation strategy, implementation of a Common Raven management actions (AM-PW-6) would reduce the adverse effects to Covered and Non-Covered Species to a less than significant impact.

Impact BR-9: Operational activities would result in avian and bat injury and mortality from collisions, thermal flux or electrocution at generation and transmission facilities.

Alternative 3 would result in loss of avian and bat Covered Species that would be an adverse impact to avian and bat populations. These impacts would be concentrated in the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, Pinto Lucerne Valley and Eastern Slopes, and West Mojave and Eastern Slopes subareas. The adverse effects of avian and bat injury and mortality would be avoided and minimized through the implementation of avoidance and minimization CMAs and compensation CMAs established to offset the impacts of Covered Activities. These CMAs would contribute to the overall DRECP conservation strategy, which includes conservation within Reserve Design Lands and a coordinated Monitoring and Adaptive Management Program. Implementation of the CMAs as part of the overall DRECP conservation strategy would reduce the adverse effects to a less than significant impact.

The level of impact on avian and bat Non-Covered Species would be as discussed for the Covered Species.

IV.7.3.5.7 Comparison of Alternative 3 with Preferred Alternative

Chapter IV.27 presents a comparison of all action alternatives and the No Action Alternative across all disciplines. This section summarizes the comparison of Alternative 3 with the Preferred Alternative.

IV.7.3.5.7.1 Alternative 3 Compared with Preferred Alternative for Plan-Wide DRECP

Alternative 3 would concentrate renewable energy development into over 1.4 million acres of DFAs (6% of the Plan Area) as compared to the approximately 2 million acres of DFAs (9% of the Plan Area) under the Preferred Alternative. Under Alternative 3, 89% of the DFAs are characterized by low terrestrial intactness as compared to the 87% of the DFAs in the Preferred Alternative. Alternative 3 and the Preferred Alternative would result in roughly equivalent conservation acreage within Reserve Design Lands; however, the BLM LUPA conservation designations vary between these alternatives. Alternative 3 BLM LUPA conservation designations would include 36% ACEC designations, 61% NLCS designations, and 2% wildlife allocation designations, whereas the Preferred Alternative BLM LUPA conservation designations would include 32% ACEC designations, 65% NLCS designations, and 3% wildlife allocation designations. The following provides a comparative analysis for specific biological resources.

Natural Communities

A summary of the differences between effects under this Alternative and the Preferred Alternative is provided below.

California forest and woodlands

Overall, approximately 40 acres of California forest and woodlands would be impacted under Alternative 3, compared to 100 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts from transmission in the Pinto Lucerne Valley and Eastern Slopes subarea, but much fewer impacts from solar, transmission, and wind development in the West Mojave and Eastern Slopes subarea.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 900 acres of chaparral and coastal scrubs would be impacted under Alternative 3, compared to 2,000 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts from solar and transmission in the Pinto Lucerne Valley and Eastern Slopes subarea and fewer impacts from solar and wind in the West Mojave and Eastern Slopes subarea.

Desert conifer woodlands

Overall, approximately 800 acres of desert conifer woodlands would be impacted under Alternative 3, compared to 1,000 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts from solar development and transmission in the Pinto Lucerne Valley and Eastern Slopes subarea and transmission in the West Mojave and Eastern Slopes subarea, but fewer impacts from solar and wind in the West Mojave and Eastern Slopes subarea.

Desert outcrop and badlands

Overall, approximately 6,000 acres of desert outcrop and badlands would be impacted under Alternative 3, compared to 10,000 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are fewer impacts in the Cadiz Valley and Chocolate Mountains subarea, but about the same or more impacts in the remaining subareas.

Desert scrubs

Overall, approximately 93,000 acres of desert scrubs would be impacted under Alternative 3, compared to 92,000 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are fewer impacts in the Cadiz Valley and Chocolate Mountains and Kingston and Funeral Mountains subareas under Alternative 3, but

greater or about the same impacts in all other impacted subareas. Much of the difference is a result of less solar, wind, and transmission development in the Cadiz Valley and Chocolate Mountains under Alternative 3.

Dunes

Like the Preferred Alternative, impacts to dune communities would be minimized under Alternative 3 since application of the CMAs would require that dune communities be avoided to the maximum extent feasible in DFAs. In addition, CMA application would prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

Grasslands

Overall, approximately 7,000 acres of grasslands would be impacted under Alternative 3, compared to 6,000 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts across all four subareas impacted. Overall, there are more impacts from solar development under Alternative 3 compared to the Preferred Alternative.

Riparian

Like the Preferred Alternative, impacts to riparian communities would be avoided under Alternative 3 since application of the CMAs would require that riparian communities be avoided to the maximum extent feasible in DFAs. In addition, setbacks from riparian communities would be required that range from 200 feet for Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub to 0.25 mile for Southwestern North American riparian evergreen and deciduous woodland and Southwestern North American riparian/wash scrub.

Wetlands

Overall, approximately 12,000 acres of wetlands would be impacted under Alternative 3, compared to 10,000 acres under the Preferred Alternative. Like the Preferred Alternative, impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep would not occur under Alternative 3 since application of the CMAs would require that these communities be avoided to the maximum extent feasible in DFAs, including a 0.25-mile setback.

Compared to the Preferred Alternative, there are fewer impacts in the Cadiz Valley and Chocolate Mountains and no impacts in the Kingston and Funeral Mountains subarea. However, there are more impacts to open water at the Salton Sea in the Imperial Borrego Valley subarea under Alternative 3, mostly from solar development. All of the other

remaining subareas with impacts also have greater impacts under Alternative 3 compared to the Preferred Alternative.

Conservation of Natural Communities

A summary of the differences between conservation under this Alternative and the Preferred Alternative is provided below.

California forest and woodlands

Overall, approximately 63,000 acres (42%) of California forest and woodlands would be conserved under Alternative 3, compared to 62,000 acres (41%) under the Preferred Alternative. Compared to the Preferred Alternative, there are more California forest and woodland areas conserved mostly in the West Mojave and Eastern Slopes subarea.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 33,000 acres (30%) of chaparral and coastal scrubs would be conserved under Alternative 3, compared to 31,000 acres (28%) under the Preferred Alternative. The largest difference between the alternatives is in more conserved acreage, from Conservation Planning Areas in the West Mojave and Eastern Slopes subarea under Alternative 3 compared to the Preferred Alternative.

Desert conifer woodlands

Overall, approximately 187,000 acres (65%) of desert conifer woodlands would be conserved under Alternative 3, compared to 186,000 acres (65%) under the Preferred Alternative. Compared to the Preferred Alternative, there is more conservation, mostly from Conservation Planning Areas, in the West Mojave and Eastern Slopes subarea.

Desert outcrop and badlands

Overall, approximately 1,285,000 acres (80%) of desert outcrop and badlands would be conserved under Alternative 3, compared to 1,295,000 acres (80%) under the Preferred Alternative. Although conservation between these subareas is similar overall, the distribution of conservation varies substantially. Compared to the Preferred Alternative, there is greater conservation of this general community in the Cadiz Valley and Chocolate Mountains subarea. There is less conserved acreage in the Owens River Valley, Pinto Lucerne Valley, and Piute Valley and Sacramento Mountains subareas, with the greatest difference in the Piute Valley and Sacramento Mountains subarea.

Desert scrubs

Overall, approximately 9,808,000 acres (74%) of desert scrubs would be conserved under Alternative 3, compared to 9,729,000 acres (74%) under the Preferred Alternative. Most subareas in the Plan Area have greater conservation of desert scrubs under Alternative 3 compared to the Preferred Alternative. The largest differences are in the Cadiz Valley and Chocolate Mountains and Providence and Bullion Mountains subareas, but there is also more conservation of desert scrubs in the Imperial Borrego Valley, Kingston and Funeral Mountains, Pinto Lucerne Valley and Eastern Slopes, and West Mojave and Eastern Slopes subareas. Of the remaining subareas with less conservation under Alternative 3, the Mojave and Silurian Valley subarea has the largest difference between the two alternatives.

Dunes

Overall, approximately 217,000 acres (77%) of dunes would be conserved under Alternative 3, compared to 209,000 acres (74%) under the Preferred Alternative. The most substantial differences between the alternatives are more BLM LUPA conservation designations in the Cadiz Valley and Chocolate Mountains, Pinto Lucerne Valley and Eastern Slopes, and Imperial Borrego Valley subareas, and fewer BLM LUPA conservation designations in the Mojave and Silurian Valley subarea under Alternative 3 compared to the Preferred Alternative.

In addition to conservation, impacts to dune communities would be minimized under both alternatives since application of the CMAs would require that dune communities be avoided to the maximum extent feasible in DFAs. In addition, CMA application would prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

Grasslands

Overall, approximately 57,000 acres (24%) of grasslands would be conserved under Alternative 3, compared to 54,000 acres (22%) under the Preferred Alternative. Compared to the Preferred Alternative, there is more conservation of grasslands in the Cadiz Valley and Chocolate Mountains, but much less in the West Mojave and Eastern Slope subarea under Alternative 3.

Riparian

Overall, approximately 705,000 acres (71%) of riparian communities would be conserved under Alternative 3, compared to 715,000 acres (72%) under the Preferred Alternative. The

most substantial difference between the alternatives is much less conservation in BLM LUPA conservation designations in the Cadiz Valley and Chocolate Mountains under Alternative 3.

In addition to conservation, impacts to riparian communities would be avoided under both alternatives since application of the CMAs would require that riparian communities be avoided to the maximum extent feasible in DFAs. In addition, setbacks from riparian communities would be required that range from 200 feet for Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub to 0.25 mile for Southwestern North American riparian evergreen and deciduous woodland and Southwestern North American riparian/wash scrub.

Wetlands

Overall, approximately 457,000 acres (53%) of wetlands would be conserved under Alternative 3, compared to 433,000 acres (50%) under the Preferred Alternative. There is more conserved acreage of wetlands primarily in the Providence and Bullion Mountains, West Mojave and Eastern Slopes, and Cadiz Valley and Chocolate Mountains subareas. There are fewer impacts primarily in the Mojave and Silurian Valley and Panamint Death Valley subareas.

In addition to conservation, impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep would not occur under both alternatives since application of the CMAs would require that these communities be avoided to the maximum extent feasible in DFAs, including a 0.25-mile setback.

Impacts to Covered Species

Overall, there are greater impacts to suitable habitat for Covered Species under Alternative 3 compared to the Preferred Alternative. Less suitable habitat for Covered Species would be impacted under Alternative 3 in only two subareas: Cadiz Valley and Chocolate Mountains and Kingston and Funeral Mountains subareas with the greatest difference in the Cadiz Valley and Chocolate Mountains subarea.

More suitable habitat for Covered Species would be impacted under Alternative 3 compared to the Preferred Alternative for two of the four amphibian/reptile species—Agassiz's desert tortoise and flat-tailed horned lizard. Alternative 3 would result in less impact to desert tortoise important areas than would the Preferred Alternative. Most of the covered bird species have greater impacts to their suitable habitat under Alternative 3 including some birds associated with riparian/wetland areas (i.e., California black rail, least Bell's vireo, southwestern willow flycatcher, tricolored blackbird, western yellow-billed cuckoo, Yuma clapper rail) and birds associated with other habitats (Bendire's thrasher, burrowing owl, mountain plover, Swainson's hawk, greater sandhill crane). Suitable habitat

for all of the covered fish species except Mohave tui chub, which would not be impacted under either alternative, would have greater impacts under Alternative 3, but the impacts would not differ by more than 100 acres for any of the species. Suitable habitat for bighorn sheep (both mountain and inter-mountain), Mohave ground squirrel, pallid bat and Townsend's big-eared bat would be impacted more under Alternative 3 than under the Preferred Alternative. Alternative 3 would impact more Mohave ground squirrel important areas than would the Preferred Alternative. Six of the ten covered plant species would have greater impacts under Alternative 3 compared to the Preferred Alternative, including alkali mariposa-lily, Barstow woolly sunflower, desert cymopterus, Little San Bernardino Mountains linanthus, Owens Valley checkerbloom, and Parish's daisy. However, CMA application would further avoid and minimize impacts to suitable habitat for Covered Species under both alternatives as described in Section IV.7.3.3.1.1.

Impacts to Non-Covered Species

Overall, Alternative 3 could result in greater potential impacts to suitable habitat for approximately half of the Non-Covered Species evaluated as compared to the Plan-wide Preferred Alternative.

More suitable habitat for Non-Covered Species has the potential to be impacted under the Preferred Alternative compared to the Alternative 3 for all of the invertebrates evaluated. However, under both alternatives, application of CMAs and general siting design would further protect spring-, cave-, and dune-restricted species by avoiding renewable development in these habitats. More suitable habitat for Non-Covered Species could be impacted under Alternative 3 for less than half the amphibian/reptile species compared to the Preferred Alternative. The majority of bird Non-Covered Species would have greater potential impacts to suitable habitat under Alternative 3 as compared to the Preferred Alternative. Both of the fish Non-Covered species could potentially have greater impacts under Alternative 3; however, implementation of CMAs would preclude development within the habitat for the fish, thus further protecting this species under either Alternative. Greater potential impacts to suitable habitat for the majority of mammal Non-Covered Species would occur under Alternative 3 as compared to the Preferred Alternative. Less than half of the plant Non-Covered Species could have greater potential impacts under Alternative 3 compared to the Preferred Alternative.

Conservation of Covered Species

Overall, there is greater conservation of Covered Species habitat under Alternative 3 compared to the Preferred Alternative. There is more conservation in both BLM LUPA conservation designations and Conservation Planning Areas under Alternative 3. Compared to the Preferred Alternative there is greater conservation of suitable habitat for Covered Species in the Cadiz Valley and Eastern Slopes, Imperial Borrego Valley, Kingston

and Funeral Mountains, Pinto Lucerne Valley and Eastern Slopes, Providence and Bullion Mountains, and West Mojave and Eastern Slopes subareas under Alternative 3.

More suitable habitat for the following species would be conserved under the Preferred Alternative compared to Alternative 3: Bendire's thrasher, Gila woodpecker, golden eagle, least Bell's vireo, southwestern willow flycatcher, Owens pupfish, Owens tui chub, bighorn sheep, Little San Bernardino Mountains linanthus, Mojave monkeyflower, Owens Valley checkerbloom, and Parish's daisy. For the remaining species, more or about the same suitable habitat would be conserved under Alternative 3.

In addition to conservation of suitable habitat for Covered Species, compensation CMAs would offset habitat loss for all Covered Species under both alternatives. CMAs also require avoidance and minimization of Covered Species in DFAs and CMAs would be applied in the Reserve to benefit Covered Species.

Impacts to the Desert Linkage Network

Overall, fewer acres of the desert linkage network would be impacted under Alternative 3 compared to the Preferred Alternative. There are more DFAs under the Preferred Alternative compared to Alternative 3 in linkages along East Mesa, in the Chuckwalla Valley, between the Chocolate Mountains and the Palo Verde Mesa, in the areas near Iron Mountain and Bell Mountain, and in the Indian Wells Valley.

To avoid and minimize impacts to the desert linkage network beyond what is presented in Table IV.7-212, Covered Activities will be sited and designed to maintain the function of wildlife connectivity in the following linkage and connectivity areas: (1) across Interstate 10 centered on Wiley's Well Road to connect the Mule and McCoy mountains, (2) across Interstate 10 to connect the Chuckwalla and Palen mountains, (3) across Interstate 10 to connect the Chuckwalla Mountains to the Chuckwalla Valley east of Desert Center, and (4) the confluence of Milpitas Wash and Colorado River floodplain. In addition, the Riparian and Wetland Natural Communities and Covered Species CMAs will contribute to maintaining and promoting habitat connectivity and wildlife movement.

Conservation of the Desert Linkage Network

Overall, there is greater conservation of the desert linkage network under Alternative 3 compared to the Preferred Alternative. Some areas with more conservation under Alternative 3 compared to the Preferred Alternative include the linkage along East Mesa in the Imperial Borrego Valley, in the linkage from Palo Verde Mesa to the McCoy Mountains, and the West Mojave and Eastern Slopes subarea. In addition to conservation of the desert linkage network, CMAs provide for the avoidance and minimization of certain linkages in the DFAs.

Operational Impacts

The operation of renewable energy would result in the degradation of vegetation through the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants as well as the disturbance of wildlife due to noise, predator avoidance behavior, and light and glare. Alternative 3 would result in slightly larger terrestrial operational impacts in the Plan Area when compared with the Preferred Alternative. Additionally, the distribution of vegetation degradation and wildlife disturbance as a result of operational impacts would be distributed differently under the Preferred Alternative and Alternative 3. The degradation of vegetation and disturbance of wildlife during operations in Alternative 3 would be more slightly more distributed in the Imperial Borrego Valley subarea, whereas the Preferred Alternative would have a slightly larger distribution of terrestrial operational impacts in the Cadiz Valley and Chocolate Mountains subarea. Both the Preferred Alternative and Alternative 3 would direct renewable energy development to DFAs that are designed to minimize impacts to biological resources and both would implement CMAs to avoid, minimize, and compensate for operational impacts from vegetation degradation and wildlife disturbance.

Alternative 3 would result in an estimated 5,200 fewer bird collisions and 24,200 fewer bat collision with wind turbines than the Preferred Alternative. However, this would result in a 9,832 acres increase in solar development, with a proportional increase in the associated operational impacts to covered avian and bat species and resources. Compared to the Preferred Alternative, Alternative 3 would increase impacts in West Mojave and Eastern slopes and the Pinto Lucerne Valley subareas, while reducing impacts from solar operations in Cadiz and Chocolate Mountain, and Kingston and Funeral Mountains subareas. Impacts in the Imperial Borrego Valley would be broadly similar to the Preferred Alternative

IV.7.3.5.7.2 Alternative 3 Compared with Preferred Alternative for the BLM Land Use Plan Amendment

Alternative 3 would concentrate renewable energy development in approximately 211,000 acres of DFAs on BLM-administered lands as compared to the approximately 367,000 acres of DFAs on BLM-administered lands under the Preferred Alternative. Alternative 3 would designate 5.0 million acres of BLM LUPA conservation designations on BLM-administered lands, including 3.4 million acres of NLCS, 1.6 million acres of ACEC, and 13,000 acres of wildlife allocation, whereas the Preferred Alternative would designate 4.9 million acres of BLM LUPA conservation designations on BLM-administered lands, including 3.5 million acres of NLCS, 1.4 million acres of ACEC, and over 18,000 acres of wildlife allocation under the Preferred Alternative. The following provides a comparative analysis for specific biological resources.

Impacts to Natural Communities

A summary of the differences between effects under this Alternative and the Preferred Alternative is provided below.

California forest and woodlands

Overall, approximately 40 acres of California forest and woodlands would be impacted under both Alternative 3 and the Preferred Alternative for the BLM LUPA. Compared to the Preferred Alternative, there are greater impacts from transmission in the Pinto Lucerne Valley and Eastern Slopes subarea, but no impacts in the West Mojave and Eastern Slopes subarea.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 200 acres of chaparral and coastal scrubs would be impacted under Alternative 3 for the BLM LUPA, compared to 300 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts from solar and transmission in the Pinto Lucerne Valley and Eastern Slopes. There are also fewer impacts from solar and wind development in the West Mojave and Eastern Slopes subarea, which account for the greatest difference between the impacts for each Alternative.

Desert conifer woodlands

Overall, approximately 100 acres of desert conifer woodlands would be impacted under Alternative 3, compared to 400 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts in the Pinto Lucerne Valley and Eastern Slopes. However, there are no impacts in the West Mojave and Eastern Slopes subarea under Alternative 3, which is the greatest difference between the impacts for each Alternative.

Desert outcrop and badlands

Overall, approximately 8,000 acres of desert outcrop and badlands would be impacted under Alternative 3 for the BLM LUPA, compared to 5,000 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts mostly in the Imperial Borrego Valley subarea. However, there are much fewer impacts (mostly from solar development) in the Cadiz Valley and Chocolate Mountains subarea that make up the biggest difference between the two alternatives.

Desert scrubs

Overall, approximately 37,000 acres of desert scrubs would be impacted under Alternative 3 for the BLM LUPA, compared to 46,000 acres under the Preferred

Alternative. Compared to the Preferred Alternative, there are actually greater impacts in the Imperial Borrego Valley, Panamint Death Valley, Pinto Lucerne Valley and Eastern Slopes, and Providence and Bullion Mountains subareas. However, total impacts are fewer under this Alternative primarily because there are fewer impacts from solar in the Cadiz Valley and Chocolate Mountains. There are also fewer impacts in the Mojave and Silurian Valley and West Mojave and Eastern Slopes subareas and no impacts in Kingston and Funeral Mountain subarea under this Alternative.

Dunes

Like the Preferred Alternative, impacts to dune communities would be minimized under Alternative 3 for the BLM LUPA since application of the CMAs would require that dune communities be avoided to the maximum extent feasible in DFAs. In addition, CMA application would prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

Grasslands

Overall, approximately 300 acres of grasslands would be impacted under Alternative 3 for the BLM LUPA, compared to 500 acres under the Preferred Alternative. Impacts to grasslands are fewer under this Alternative primarily because there are fewer impacts from solar in the West Mojave and Eastern Slopes subarea, but there are also fewer impacts in the Cadiz Valley and Eastern Slopes subarea and greater impacts in the Pinto Lucerne Valley and Eastern Slopes subarea.

Riparian

Like the Preferred Alternative, impacts to riparian communities would be avoided under Alternative 3 for the BLM LUPA since application of the CMAs would require that riparian communities be avoided to the maximum extent feasible in DFAs. In addition, setbacks from riparian communities would be required that range from 200 feet for Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub to 0.25 mile for Southwestern North American riparian evergreen and deciduous woodland and Southwestern North American riparian/wash scrub.

Wetlands

Overall, approximately 4,000 acres of wetlands would be impacted under both Alternative 3 and the Preferred Alternative. Compared to the Preferred Alternative, there are fewer impacts in only the Cadiz Valley and Chocolate Mountains subarea with

most of the difference in solar development. Like the Preferred Alternative, impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep would not occur under Alternative 3 since application of the CMAs would require that these communities be avoided to the maximum extent feasible in DFAs, including a 0.25-mile setback.

Conservation of Natural Communities for the BLM LUPA

A summary of the differences between conservation under this Alternative and the Preferred Alternative is provided below.

California forest and woodlands

Overall, approximately 38,000 acres (86%) of California forest and woodlands would be conserved under both Alternative 3 and the Preferred Alternative for BLM LUPA.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 11,000 acres (62%) of chaparral and coastal scrubs would be conserved under both Alternative 3 and the Preferred Alternative for the BLM LUPA.

Desert conifer woodlands

Overall, approximately 41,000 acres (82%) of desert conifer woodlands would be conserved under both Alternative 3 and the Preferred Alternative for the BLM LUPA.

Desert outcrop and badlands

Overall, approximately 1,020,000 acres (85%) of desert outcrop and badlands would be conserved under Alternative 3, compared to 1,017,000 acres (85%) under the Preferred Alternative for the BLM LUPA. Although conservation between these subareas is similar overall, the distribution of conservation varies. Compared to the Preferred Alternative, there is greater conservation of this general community in the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley, with the greatest difference in the Cadiz Valley and Chocolate Mountains subarea. There is the same or less conserved acreage in the remaining subareas, with the greatest difference by far in the Piute Valley and Sacramento Mountains subarea.

Desert scrubs

Overall, approximately 5,917,000 acres (84%) of desert scrubs would be conserved under Alternative 3, compared to 5,835,000 acres (83%) under the Preferred Alternative for the BLM LUPA. Over half of the subareas in the Plan Area have greater conservation of

desert scrubs under Alternative 3 compared to the Preferred Alternative. The biggest difference is in the Cadiz Valley and Chocolate Mountains subarea, but there is also more conservation of desert scrubs in the Imperial Borrego Valley, Kingston and Funeral Mountains, Pinto Lucerne Valley and Eastern Slopes, Providence and Bullion Mountains, and West Mojave and Eastern Slopes subareas. Of the remaining subareas with less conservation under Alternative 3, the Mojave and Silurian Valley subarea has the largest difference between the two alternatives.

Dunes

Overall, approximately 96,000 acres (75%) of dunes would be conserved under Alternative 3, compared to 89,000 acres (70%) under the Preferred Alternative for the BLM LUPA. The only subarea with conservation of dunes with fewer conserved acres under Alternative 3 is the Mojave and Silurian Valley subarea. The greatest difference in conserved dune acreage is in the Cadiz Valley and Chocolate Mountains subarea.

In addition to conservation, impacts to dune communities would be minimized under both alternatives since application of the CMAs would require that dune communities be avoided to the maximum extent feasible in DFAs. In addition, CMA application would prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

Grasslands

Overall, approximately 24,000 acres (84%) of grasslands would be conserved under Alternative 3, compared to 23,000 acres (80%) under the Preferred Alternative for the BLM LUPA. Compared to the Preferred Alternative, there is more conservation of grasslands in NLCS areas in the Cadiz Valley and Chocolate Mountains subarea.

Riparian

Overall, approximately 519,000 acres (80%) of dunes would be conserved under Alternative 3, compared to 515,000 acres (80%) under the Preferred Alternative for the BLM LUPA. The most substantial differences between the alternatives is much more conservation in the Cadiz Valley and Chocolate Mountains subarea and less conserved acreage in the Mojave and Silurian Valley and Piute Valley and Sacramento Mountains subareas under Alternative 3.

In addition to conservation, impacts to riparian communities would be avoided under both alternatives since application of the CMAs would require that riparian communities be avoided to the maximum extent feasible in DFAs. In addition, setbacks from riparian communities would be required that range from 200 feet for Madrean warm semi-desert

wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub to 0.25 mile for Southwestern North American riparian evergreen and deciduous woodland and Southwestern North American riparian/wash scrub.

Wetlands

Overall, approximately 203,000 acres (68%) of wetlands would be conserved under Alternative 3, compared to 184,000 acres (62%) under the Preferred Alternative. There is more conserved acreage of wetlands primarily in the West Mojave and Eastern Slopes, Cadiz Valley and Chocolate Mountains, and Providence and Bullion Mountains subareas. All of the other subareas, except the Mojave and Silurian Valley subarea, have the same or fewer conserved acres of wetland communities.

In addition to conservation, impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep would not occur under both alternatives since application of the CMAs would require that these communities be avoided to the maximum extent feasible in DFAs, including a 0.25-mile setback.

Impacts to Covered Species Habitat

Overall, there are lesser impacts to suitable habitat for Covered Species under Alternative 3 compared to the Preferred Alternative for the BLM LUPA. The only subareas where more suitable habitat for Covered Species would impacted under Alternative 3 would be the Imperial Borrego Valley, Owens River Valley, Panamint Death Valley, Pinto Lucerne and Eastern Slopes, and Providence and Bullion Mountains subareas. Alternative 3 has less impacts to suitable habitat for the following Covered Species: Agassiz's desert tortoise, Mojave fringe-toed lizard, Tehachapi slender salamander, tricolored blackbird, California black rail, Mojave tarplant, golden eagle, California condor, California leaf-nosed bat, pallid bat, Townsend's big-eared bat, Bakersfield cactus, and Mojave tarplant. However, CMA application would further avoid and minimize impacts to suitable habitat for Covered Species under both alternatives as described in Section IV.7.3.3.1.1.

Impacts to Non-Covered Species Habitat

Overall, Alternative 3 only has the potential for greater impacts to suitable habitat for two Non-Covered Species compared to the BLM LUPA Preferred Alternative.

More suitable habitat for Non-Covered Species has the potential to be impacted under the Preferred Alternative compared to the Alternative 3 for all of the invertebrates evaluated. However, under both alternatives, application of CMAs and general siting design will further protect spring-, cave-, and dune-restricted species by avoiding renewable development in these habitats. More suitable habitat for Non-Covered Species could be

impacted under the Preferred Alternative compared to Alternative 3 for all amphibian/reptile species. All of the bird Non-Covered Species have greater potential impacts to suitable habitat under the Preferred Alternative as compared to Alternative 3. Both of the fish Non-Covered species could potentially have greater impacts under the Preferred Alternative; however, implementation of CMAs would preclude development within the habitat for the fish, thus further protecting this species under either Alternative. Greater potential impacts to suitable habitat for all of the mammal Non-Covered Species could occur under the Preferred Alternative as compared to Alternative 3. Only two plant Non-Covered Species could have greater potential impacts under Alternative 3 compared to the Preferred Alternative.

Conservation of Covered Species Habitat

Overall, there is more conservation of Covered Species habitat under Alternative 3 compared to the Preferred Alternative. There is less conservation in NLCS areas and wildlife allocations under Alternative 3, but more conservation in ACECs. The only subarea with wildlife allocations under both the Preferred Alternative and Alternative 3 is the West Mojave and Eastern Slopes subarea. There is greater conservation of Covered Species habitat in the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, Kingston and Funeral Mountains, Pinto Lucerne Valley and Eastern Slopes, Providence and Bullion Mountains, and West Mojave and Eastern Slopes subareas under Alternative 3 compared to the Preferred Alternative. The greatest difference between alternatives among the remaining subareas would be in the Mojave and Silurian Valley subarea.

More suitable habitat for the following Covered Species would be conserved under Alternative 3 compared to the Preferred Alternative: Agassiz's desert tortoise, Mojave fringe-toed lizard, flat-tailed horned lizard, greater sandhill crane, mountain plover, southwestern willow flycatcher, Yuma clapper rail, California condor, Swainson's hawk, California black rail, burrowing owl, golden eagle (foraging), bighorn sheep (mountain habitat), California leaf-nosed bat, Mohave ground squirrel, pallid bat, Townsend's big-eared bat, Bakersfield cactus, Mojave tarplant, and Barstow woolly sunflower. For the remaining species, more or the same suitable habitat would be conserved under the Preferred Alternative.

In addition to conservation of suitable habitat for Covered Species, compensation CMAs would offset habitat loss for all Covered Species under both alternatives. CMAs also require avoidance and minimization of Covered Species in DFAs and CMAs would be applied in the Reserve to benefit Covered Species.

Impacts to the Desert Linkage Network

Overall, fewer acres of the desert linkage network would be impacted under Alternative 3 compared to the Preferred Alternative for the BLM LUPA. There are more DFAs under the

Preferred Alternative compared to Alternative 3 in linkages along East Mesa, in the Chuckwalla Valley, and between the Chocolate Mountains and the Palo Verde Mesa.

To avoid and minimize impacts to the desert linkage network beyond what is presented in Table IV.7-227, Covered Activities will be sited and designed to maintain the function of wildlife connectivity in the following linkage and connectivity areas: (1) across Interstate 10 centered on Wiley's Well Road to connect the Mule and McCoy mountains, (2) across Interstate 10 to connect the Chuckwalla and Palen mountains, (3) across Interstate 10 to connect the Chuckwalla Mountains to the Chuckwalla Valley east of Desert Center, and (4) the confluence of Milpitas Wash and Colorado River floodplain. In addition, the Riparian and Wetland Natural Communities and Covered Species CMAs will contribute to maintaining and promoting habitat connectivity and wildlife movement.

Conservation of the Desert Linkage Network

Overall, there is greater conservation of the desert linkage network under Alternative 3 compared to the Preferred Alternative. Some areas with more conservation under Alternative 3 compared to the Preferred Alternative include the linkage along East Mesa in the Imperial Borrego Valley, in the linkage from Palo Verde Mesa to the McCoy Mountains, and the Chuckwalla Valley. In addition to conservation of the desert linkage network, CMAs provide for the avoidance and minimization of certain linkages in the DFAs.

Operational Impacts

The operation of renewable energy would result in the degradation of vegetation through the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants as well as the disturbance of wildlife due to noise, predator avoidance behavior, and light and glare. Alternative 3 would result in a smaller amount of terrestrial operational impacts on BLM Land when compared with the Preferred Alternative. Additionally, the distribution of vegetation degradation and wildlife disturbance as a result of operational impacts would be distributed differently under the Preferred Alternative and Alternative 3. The degradation of vegetation and disturbance of wildlife during operations in Alternative 3 would be more heavily distributed in the Imperial Borrego Valley subarea, while the Preferred Alternative would have a greater distribution of terrestrial operational impacts in the Cadiz Valley and Chocolate Mountains subarea on BLM Land. Both the Preferred Alternative and Alternative 3 would direct renewable energy development to DFAs that are designed to minimize impacts to biological resources and both would implement CMAs to avoid, minimize, and compensate for operational impacts from vegetation degradation and wildlife disturbance.

Alternative 3 would result in an estimated 3,100 fewer bird collisions and 14,700 fewer bat collision with wind turbines than the Preferred Alternative. There would also be a decrease

of 7,935 acres of terrestrial solar impacts, with a proportional decrease in the associated operational impacts to covered avian and bat species and resources. The major decrease in impacts would occur in the Cadiz and Chocolate Mountains subarea, with a reduction of 10,179 acres. However, avian impacts from solar generation would increase in both Imperial Borrego Valley and Pinto Lucerne Valley.

IV.7.3.5.7.3 Alternative 3 Compared with Preferred Alternative for NCCP

The impacts of the NCCP for Alternative 3 are the same as those defined in Section IV.7.3.2.1 for the Plan-wide analysis. As a result, the comparison of Alternative 3 with the Preferred Alternative for the NCCP is the same as described above for Plan-wide DRECP.

IV.7.3.5.7.4 Alternative 3 Compared with Preferred Alternative for the GCP

Alternative 3 would allow renewable energy development on approximately 1.2 million acres of DFAs on nonfederal lands as compared to the approximately 1.6 million acres of DFAs on nonfederal lands under the Preferred Alternative. Under Alternative 3, the Reserve Design Lands would include approximately 2.8 million acres on nonfederal lands, including 434,000 acres within existing conservation areas, 1.2 million acres within BLM LUPA conservation designations, and 1.2 million acres within Conservation Planning Areas. This compares to the Preferred Alternative that includes approximately 2.7 million acres of Reserve Design Lands on nonfederal lands, including 434,000 acres within existing conservation areas, 1.2 million acres within BLM LUPA conservation designations, and 1.1 million acres within Conservation Planning Areas. The following provides a comparative analysis for specific biological resources.

Impacts to Natural Communities

A summary of the differences between effects under this Alternative and the Preferred Alternative is provided below.

California forest and woodlands

Overall, no impacts to California forest and woodlands would be expected under Alternative 3 under the GCP, compared to approximately 80 acres of impacts to California forest and woodlands under the Preferred Alternative.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 800 acres of chaparral and coastal scrubs would be impacted under Alternative 3 under the GCP, compared to 1,000 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts in the Pinto

Lucerne Valley and Eastern Slopes subarea, but fewer impacts in the West Mojave and Eastern Slopes subarea.

Desert conifer woodlands

Overall, approximately 700 acres of desert conifer woodlands would be impacted under Alternative 3, compared to 900 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts in the Pinto Lucerne Valley and Eastern Slopes and fewer impacts in the West Mojave and Eastern Slopes subarea.

Desert outcrop and badlands

Overall, approximately 2,000 acres of desert outcrop and badlands would be impacted under Alternative 3, compared to 1,000 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts in the Imperial Borrego Valley, Owens River Valley, Pinto Lucerne Valley and Eastern Slopes, and Providence and Bullion Mountains subareas, with the greatest difference being in the Imperial Borrego Valley. There are fewer impacts in the West Mojave and Eastern Slopes subarea under Alternative 3 under the GCP than under the Preferred Alternative.

Desert scrubs

Overall, approximately 55,000 acres of desert scrubs would be impacted under Alternative 3 under the GCP, compared to 45,000 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts from solar development in all impacted subareas, but fewer or about the same impacts from wind development in all impacted subareas. The Imperial Borrego Valley is the only subarea with geothermal effects under Alternative 3 under the GCP, which exceed those of the Preferred Alternative. GCP impacts from transmission are greater under Alternative 3 compared to the Preferred Alternative overall.

Dunes

Like the Preferred Alternative, impacts to dune communities would be minimized under Alternative 3 under the GCP since application of the CMAs would require that dune communities be avoided to the maximum extent feasible in DFAs. In addition, CMA application would prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

Grasslands

Overall, approximately 7,000 acres of grasslands would be impacted under Alternative 3, compared to 6,000 acres under the Preferred Alternative. Compared to the Preferred Alternative, Alternative 3 has more total impacts in all impacted subareas.

Riparian

Like the Preferred Alternative, impacts to riparian communities would be avoided under Alternative 3 under the GCP since application of the CMAs would require that riparian communities be avoided to the maximum extent feasible in DFAs. In addition, setbacks from riparian communities would be required that range from 200 feet for Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub to 0.25 mile for Southwestern North American riparian evergreen and deciduous woodland and Southwestern North American riparian/wash scrub.

Wetlands

Overall, approximately 7,000 acres of wetlands would be impacted under Alternative 3 under the GCP, compared to 5,000 acres under the Preferred Alternative. Like the Preferred Alternative, impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep would not occur under Alternative 3 since application of the CMAs would require that these communities be avoided to the maximum extent feasible in DFAs, including a 0.25-mile setback.

Conservation of Natural Communities for the GCP

A summary of the differences between conservation under this Alternative and the Preferred Alternative is provided below.

California forest and woodlands

Overall, approximately 24,000 acres (23%) of California forest and woodlands would be conserved under both Alternative 3 and the Preferred Alternative for the GCP.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 13,000 acres (16%) of chaparral and coastal scrubs would be conserved under Alternative 3, compared to 11,000 acres (13%) under the Preferred Alternative for the GCP. Compared to the Preferred Alternative, there is more conserved acreage, mostly from Conservation Planning Areas, in the West Mojave and Eastern Slopes subarea.

Desert conifer woodlands

Overall, approximately 20,000 acres (20%) of desert conifer woodlands would be conserved under Alternative 3, compared to 19,000 acres (18%) under the Preferred Alternative for the GCP. Compared to the Preferred Alternative, there is more conservation, mostly from Conservation Planning Areas, in the West Mojave and Eastern Slopes subarea.

Desert outcrop and badlands

Overall, approximately 97,000 acres (44%) of desert outcrop and badlands would be impacted under Alternative 3, compared to 110,000 acres (50%) under the Preferred Alternative for the GCP. Compared to the Preferred Alternative, there is less conservation of this general community in the Cadiz Valley and Chocolate Mountains and Owens River Valley subareas, with the greatest difference in the Cadiz Valley and Chocolate Mountains subarea.

Desert scrubs

Overall, approximately 831,000 acres (28%) of desert scrubs would be conserved under Alternative 3, compared to 833,000 acres (28%) under the Preferred Alternative for the GCP. Three of the subareas in the Plan Area have substantially greater conservation of desert scrubs under Alternative 3 compared to the Preferred Alternative. The largest difference is in the West Mojave and Eastern Slopes subarea, but there is also more conservation of desert scrubs in the Kingston and Funeral Mountains and Panamint Death Valley subareas. Of the remaining subareas with less conservation under Alternative 3, the Cadiz Valley and Chocolate Mountains and Owens River Valley subareas have the largest difference between the two alternatives.

Dunes

Overall, approximately 8,000 acres (24%) of dunes would be conserved under Alternative 3, compared to 7,000 acres (21%) under the Preferred Alternative for the GCP. There is more conservation of dunes in the Cadiz Valley and Chocolate Mountains, and Pinto Lucerne Valley and Eastern Slopes subareas, and less in the Owens River Valley subarea under Alternative 3 compared to the Preferred Alternative.

In addition to conservation, impacts to dune communities would be minimized under both alternatives since application of the CMAs would require that dune communities be avoided to the maximum extent feasible in DFAs. In addition, CMA application would prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

Grasslands

Overall, approximately 27,000 acres (13%) of grasslands would be conserved under Alternative 3, compared to 24,000 acres (12%) under the Preferred Alternative for the GCP. Compared to the Preferred Alternative, there is more conservation of grasslands in the Cadiz Valley and Chocolate Mountains and West Mojave and Eastern Slopes subareas. The biggest difference between the alternatives is in more Conservation Planning Areas in the West Mojave and Eastern Slope subarea under Alternative 3.

Riparian

Overall, approximately 60,000 acres (30%) of riparian communities would be conserved under Alternative 3, compared to 74,000 acres (37%) under the Preferred Alternative for the GCP. The most substantial difference between the alternatives is much less conservation in BLM LUPA conservation designations in the Cadiz Valley and Chocolate Mountains subarea. There is also less conservation in the Mojave and Silurian Valley subarea.

In addition to conservation, impacts to riparian communities would be avoided under both alternatives since application of the CMAs would require that riparian communities be avoided to the maximum extent feasible in DFAs. In addition, setbacks from riparian communities would be required that range from 200 feet for Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub to 0.25 mile for Southwestern North American riparian evergreen and deciduous woodland and Southwestern North American riparian/wash scrub.

Wetlands

Overall, approximately 76,000 acres (23%) of wetlands would be impacted under Alternative 3, compared to 72,000 acres (22%) under the Preferred Alternative for the GCP. There is more conserved acreage of wetlands primarily in the West Mojave and Eastern Slopes, Cadiz Valley and Chocolate Mountains, and Providence and Bullion Mountains subareas. All of the other subareas have the same or fewer conserved acres of wetland communities.

In addition to conservation, impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep would not occur under both alternatives since application of the CMAs would require that these communities be avoided to the maximum extent feasible in DFAs, including a 0.25-mile setback.

Impacts to Covered Species Habitat

Overall, there are greater impacts to suitable habitat for Covered Species under Alternative 3 compared to the Preferred Alternative for the GCP. Less suitable habitat for Covered

Species would be impacted under Alternative 3 only in the Kingston and Funeral Mountains subarea. More suitable habitat for Covered Species would be impacted under Alternative 3 compared to the Preferred Alternative except for the following species: Tehachapi slender salamander, Gila woodpecker, golden eagle (nesting), Bakersfield cactus, Mojave monkeyflower, and Mojave tarplant. However, CMA application would further avoid and minimize impacts to suitable habitat for Covered Species under both alternatives as described in Section IV.7.3.3.1.1.

Impacts to Non-Covered Species Habitat

Overall, Alternative 3 only has the potential for greater impacts to suitable habitat for the Non-Covered Species as compared to the GCP Preferred Alternative.

Potential impacts to dune-restricted species would be the same for both Alternatives. In addition, application of CMAs and general siting design would further protect spring-, cave-, and dune-restricted species by avoiding renewable development in these habitats under both alternatives. More suitable habitat for Non-Covered Species could be impacted under Alternative 3 compared to Preferred Alternative for the majority of amphibian/reptile species. All of the bird Non-Covered Species have greater potential impacts to suitable habitat under Alternative 3 as compared to the Preferred Alternative. Greater potential impacts to suitable habitat for the majority of mammal Non-Covered Species could occur under Alternative 3 as compared to the Preferred Alternative. In addition, the majority of plant Non-Covered Species could have greater potential impacts under Alternative 3 compared to the Preferred Alternative.

Conservation of Covered Species Habitat

Overall, there is slightly less conservation of Covered Species habitat under Alternative 3 compared to the Preferred Alternative for the GCP. There is less conservation in BLM LUPA conservation designations and more conservation in Conservation Planning Areas under Alternative 3. There is greater conservation of Covered Species habitat in the Imperial Borrego Valley, Kingston and Funeral Mountains, Pinto Lucerne Valley and Eastern Slopes, Panamint Death Valley, Providence and Bullion Mountains, and West Mojave and Eastern Slopes subareas under Alternative 3 compared to the Preferred Alternative. The difference between conservation to Covered Species suitable habitat is the greatest in the Cadiz Valley and Chocolate Mountains subarea.

More suitable habitat for the following species would be conserved under the Preferred Alternative compared to Alternative 3: Agassiz's desert tortoise, Bendire's thrasher, California black rail, Gila woodpecker, golden eagle, southwestern willow flycatcher, western yellow-billed cuckoo, Owens pupfish, Owens tui chub, bighorn sheep, Owens

Valley checkerbloom, and Parish's daisy. The remaining species would have the same amount or more suitable habitat conserved under the Alternative 3.

In addition to conservation of suitable habitat for Covered Species, compensation CMAs would offset habitat loss for all Covered Species under both alternatives. CMAs also require avoidance and minimization of Covered Species in DFAs and CMAs would be applied in the Reserve to benefit Covered Species.

Impacts to the Desert Linkage Network

Overall, more acres of the desert linkage network would be impacted under Alternative 3 compared to the Preferred Alternative for the GCP. The biggest differences between the Alternatives would be in the West Mojave and Eastern Slopes and Pinto Lucerne Valley and Eastern slopes subareas.

To avoid and minimize impacts to the desert linkage network beyond what is presented in Table IV.7-247, Covered Activities will be sited and designed to maintain the function of wildlife connectivity in the following linkage and connectivity areas: (1) across Interstate 10 centered on Wiley's Well Road to connect the Mule and McCoy mountains, (2) across Interstate 10 to connect the Chuckwalla and Palen mountains, (3) across Interstate 10 to connect the Chuckwalla Mountains to the Chuckwalla Valley east of Desert Center, and (4) the confluence of Milpitas Wash and Colorado River floodplain. In addition, the Riparian and Wetland Natural Communities and Covered Species CMAs will contribute to maintaining and promoting habitat connectivity and wildlife movement.

Conservation of the Desert Linkage Network

Overall, there is greater conservation of the desert linkage network under the Preferred Alternative compared to Alternative 3 for the GCP. The biggest difference in acreage would be in the Cadiz Valley and Chocolate Mountains subareas. In addition to conservation of the desert linkage network, CMAs provide for the avoidance and minimization of certain linkages in the DFAs.

Operational Impacts

The operation of renewable energy would result in the degradation of vegetation through the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants as well as the disturbance of wildlife due to noise, predator avoidance behavior, and light and glare. Alternative 3 would result in a greater amount of terrestrial operational impacts within the GCP when compared with the Preferred Alternative. Additionally, the distribution of vegetation degradation and wildlife disturbance as a result of operational impacts would be

distributed differently under the Preferred Alternative and Alternative 3. The degradation of vegetation and disturbance of wildlife during operations in Alternative 3 would be more heavily distributed in the Pinto Lucerne Valley and Eastern Slopes, West Mojave and Eastern Slopes, and Cadiz Valley and Chocolate Mountains subareas than in the Preferred Alternative; however, both alternatives would have a similar distribution of terrestrial operational impacts in the GCP. Both the Preferred Alternative and Alternative 3 would direct renewable energy development to DFAs that are designed to minimize impacts to biological resources and both would implement CMAs to avoid, minimize, and compensate for operational impacts from vegetation degradation and wildlife disturbance.

Alternative 3 would result in an estimated 2,000 fewer bird collisions and 9,400 fewer bat collisions with wind turbines than the Preferred Alternative. There would also be an increase of 17,294 acres of terrestrial solar impacts, with a proportional increase in the associated operational impacts to covered avian and bat species and resources. Almost all nonfederal DFAs would see more development and consequently greater impacts to avian and bat Covered Species in Alternative 3 when compared to the Preferred Alternative. Only the Kingston and Funeral Mountain DFAs would see a slight reduction in impacts.

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IV.7.3.6 Alternative 4

The impact analysis for biological resources under Alternative 4 is provided below.

IV.7.3.6.1 Plan-Wide Impacts of Implementing the DRECP: Alternative 4

This section provides the Plan-wide assessment of impacts of implementing the DRECP for Alternative 4. This Plan-wide assessment addresses the impacts and mitigation measures from renewable energy and transmission development and impacts of the reserve design.

IV.7.3.6.1.1 Plan-Wide Impacts and Mitigation Measures from Renewable Energy and Transmission Development

Impact Assessment

The following provides the Plan-wide assessment of impacts and mitigation measures for renewable energy and transmission development for Alternative 4. Impacts are organized by biological resources impact statement (i.e., BR-1 through BR-9). Alternative 4 includes DFAs (1,608,000 acres) and transmission corridors where approximately 177,000 acres of ground disturbance related impacts would occur and where operational impacts would occur. As described in Section IV.7.1.1, the reported impact acreage (e.g., acres of impact to natural communities or Covered Species habitat) is based on the overlap of the DFAs and the resource (e.g., mapped natural community or modeled Covered Species habitat) times the proportion of the impacts from Covered Activity development anticipated with the DFA. Alternative 4 includes DRECP Variance Lands, and these areas are not considered impacted or conserved in this analysis. Therefore, the DRECP Variance Lands under Alternative 4 could be available for all forms of renewable energy development and other uses and activities. In Alternative 4, the SAAs from the Preferred Alternative are partial in the Reserve Design Lands and partially in DRECP Variance Lands, and this analysis of Alternative 4 includes conservation within the Reserve Design Lands portion.

Impact BR-1: Siting, construction, decommissioning, and operational activities would result in loss of native vegetation.

The following provides an analysis of the impacts of the development of Covered Activities on natural communities in the Plan Area. Table IV.7-259 shows the impacts to natural communities. An effects summary by general community is provided below. Appendix R2 provides a detailed analysis of natural community effects by ecoregion subarea.

California forest and woodlands

California forest and woodlands are limited to the higher elevations in the Plan Area, where they occur primarily in the Tehachapi Mountains in Kern County and the mountains in southwest San Bernardino County.

Overall, approximately 100 acres (0.1%) of California forest and woodlands would be impacted under Alternative 4. Because California forest and woodlands are located primarily in peripheral portions of the Plan Area with little overlap with DFAs, impacts to these communities are limited in extent and are primarily associated with effects from transmission. Furthermore, CMAs would be implemented to address roosting covered bat species (AM-DFA-BAT-1, AM-RES-RL-BAT-1, and AM-RES-RL-BAT-2), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects.

California forest and woodlands provide habitat for the following Covered Species: Tehachapi slender salamander, golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, bighorn sheep, and Bakersfield cactus. Therefore, impacts to this community may have an adverse effect on these species by removing or degrading suitable habitat; however, application of species-specific CMAs would help avoid and minimize that effect and compensation CMAs would offset the effect (COMP-1 and COMP-2).

Chaparral and coastal scrubs (Cismontane scrub)

Chaparrals in the Plan Area occur in the Tehachapi Mountains and at the base of the San Gabriel Mountains near Antelope Valley in the southern portion of the Plan Area. Coastal scrubs in the Plan Area generally occur east of the Tehachapi Mountains near Mojave, in the southern portion of the Plan Area from Mountain Top Junction east of Highway 138 east to Mojave River Forks Regional Park, in the Fort Irwin area, and in scattered locations west to the Plan Area boundary.

Overall, approximately 2,000 acres (1.5%) of the chaparral and coastal scrubs would be impacted under Alternative 4. Impacts would be primarily from solar development and most impacts would be to Central and South Coastal Californian coastal sage scrub. Most impacts to chaparral and coastal scrubs would occur in the West Mojave and Eastern Slopes and Pinto Lucerne Valley and Eastern Slopes subareas. CMAs would be implemented to address Covered Species (AM-DFA-BAT-1, AM-RES-RL-BAT-1, AM-RES-RL-BAT-2, AM-DFA-PLANT-1 through AM-DFA-PLANT-3, AM-RES-BLM-PLANT-1, and AM-RES-RL-PLANT-1 through AM-RES-RL-PLANT-3), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects and compensation CMAs would offset the effect (COMP-1 and COMP-2).

Chaparral and coastal scrubs provide habitat for the following Covered Species: golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, Parish's daisy, and Bakersfield cactus. Therefore, impacts to this general community may have a negative effect on these species by removing or degrading suitable habitat; however, application of species-specific CMAs would help avoid and minimize that effect and compensation CMAs would offset the effect.

Desert conifer woodlands

The desert conifer woodlands in the Plan Area primarily occur in the Tehachapi Mountains, along the southwestern boundary of the Plan Area to the San Gabriel Mountains, in the Providence and Bullion Mountains, Kingston and Funeral Mountains, and the Clark Mountain Range. All of the desert conifer woodlands in the Plan Area are classified as Great Basin pinyon-juniper woodland.

Overall, approximately 1,000 acres (0.5%) of the desert conifer woodlands would be impacted under Alternative 4. Impacts would be primarily from solar development in the West Mojave and Eastern Slopes subarea. Impacts would also occur in the Pinto Lucerne Valley and Eastern Slopes subarea. CMAs would be implemented to address roosting covered bat species (AM-DFA-BAT-1, AM-RES-RL-BAT-1, and AM-RES-RL-BAT-2), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects and compensation CMAs would offset the effect (COMP-1 and COMP-2).

Desert conifer woodlands provide habitat for the following Covered Species: Tehachapi slender salamander, golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, bighorn sheep, and Parish's daisy. Therefore, impacts to this general community may have a negative effect on these species by removing or degrading suitable habitat; however, application of species-specific CMAs would help avoid and minimize that effect and compensation CMAs would offset the effect.

Desert outcrop and badlands

Desert outcrop and badlands occur throughout much of the Plan Area, but is most prevalent in the eastern and southern portions south of the Piute Valley. All of the desert outcrop and badlands is classified as North American warm desert bedrock cliff and outcrop.

Overall, approximately 12,000 acres (0.7%) of the desert outcrop and badlands would be impacted under Alternative 4. Impacts would be primarily from solar development. Impacts to desert outcrop and badlands are widely distributed with impacts in eight of the ten subareas. However, the majority of impacts to desert outcrop and badlands would occur in the Cadiz Valley and Chocolate Mountains subarea. CMAs would be implemented

to address breeding, nesting, or roosting species (AM-DFA-BAT-1, AM-RES-RL-BAT-1, and AM-RES-RL-BAT-2), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects and compensation CMAs would offset the effect (COMP-1 and COMP-2).

Desert outcrop and badlands provide habitat for the following Covered Species: golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, and bighorn sheep. These communities also provide habitat for desert kit fox (Planning Species). Covered Species associated with desert scrub may also be associated with this general community. Therefore, impacts to desert outcrop and badlands may have a negative effect on these species by removing or degrading suitable habitat; however, application of species-specific CMAs would help avoid and minimize that effect and compensation CMAs would offset the effect.

Desert scrubs

Desert scrubs, which comprise more than 70% of the Plan Area, are distributed throughout the Plan Area. There are nine desert scrub natural communities identified in the Plan Area, but the majority of the general community on available lands is comprised of lower bajada and fan Mojavean–Sonoran desert scrub (82% or 10,830,000 acres).

Overall, approximately 93,000 acres (0.7%) of desert scrubs would be impacted under Alternative 4. Impacts would be primarily from solar development, but transmission accounts for approximately 18,000 acres of impacts to desert scrub and wind and geothermal each account for 5-6% of impacts to desert scrub. Most impacts would be to the most prevalent desert scrub community: Lower Bajada and Fan Mojavean–Sonoran desert scrub. Intermontane seral shrubland is the community that would have the greatest proportion of impacts, but only 4% of this community would be impacted (compared with 1% or less for all other desert scrub communities).

The majority of impacts to desert scrub would occur in the West Mojave and Eastern Slopes and Cadiz Valley and Chocolate Mountains subareas (approximately 65,000 acres), but impacts to desert scrubs are widely distributed; the Piute Valley and Sacramento Mountains the only subarea without impacts to this general community. CMAs would be implemented to address breeding, nesting, or roosting species that would also help reduce adverse effects to desert scrubs. These include avoidance, setbacks, and/or suitable habitat impact caps for flat-tailed horned lizard (AM-RES-RL-ICS-8 and AM-RES-RL-ICS-9 and AM-DFA-ICS-16), Agassiz's desert tortoise (AM-DFA-ICS-3 through AM-DFA-ICS-15, and AM-RES-RL-ICS-1 through AM-RES-RL-ICS-7), Mohave ground squirrel (AM-DFA-ICS-36 through AM-DFA-ICS-43 and AM-RES-BLM-ICS-14 through AM-RES-BLM-ICS-17), bat Covered Species (AM-DFA-BAT-1, AM-RES-RL-BAT-1, and AM-RES-RL-BAT-2), and plant Covered Species (AM-DFA-PLANT-1 through AM-DFA-PLANT-3, AM-RES-BLM-PLANT-1, and AM-RES-RL-PLANT-

1 through AM-RES-RL-PLANT-3). Furthermore, CMAs would be implemented to address soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects and compensation CMAs (COMP-1 and COMP-2) would offset the effect.

Desert scrubs provide habitat for the following Covered Species: golden eagle, California condor, Bendire's thrasher, burrowing owl, Swainson's hawk, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, Mohave ground squirrel, bighorn sheep, desert tortoise, flat-tailed horned lizard, Mojave fringe-toed lizard, triple-ribbed milk-vetch, alkali mariposa-lily, desert cymopterus, Mojave tarplant, Little San Bernardino Mountains linanthus, Mojave monkeyflower, and Bakersfield cactus. These communities also provide habitat for burro deer and desert kit fox (Planning Species). Therefore, impacts to this general community may have a negative effect on these species by removing or degrading suitable habitat; however, application of species-specific CMAs would help avoid and minimize that effect and compensation CMAs would offset the effect.

Dunes

Dune communities are restricted but scattered across the Plan Area, and include approximately 12 systems in the Mojave Desert and lower Great Basin Desert and 4 systems in the Sonoran Desert, as well as numerous smaller dunes. The largest dune area is located in the East Mesa-Sand Hill portion of the Sonoran Desert. Dune natural communities in the Plan Area are classified as North American warm desert dunes and sand flats.

Impacts to dune communities, except those impacts determined to be unavoidable, would be avoided under Alternative 4 through application of the dune avoidance and minimization CMAs (AM-DFA-DUNE-1 through AM-DFA-DUNE-3, AM-RES-BLM-DUNE-1, AM-RES-BLM-DUNE-2, and AM-RES-RL-DUNE-1 through AM-RES-RL-DUNE-3) as well as landscape-level CMAs for Aeolian processes (AM-LL-3). Compensation CMAs would offset any impacts determined to be unavoidable (COMP-1 and COMP-2).

Dune communities provide habitat for the following Covered Species: Mojave fringe-toed lizard and flat-tailed horned lizard. Therefore, avoidance of impacts to this general community would benefit these species and compensation CMAs would offset any impacts determined to be unavoidable.

Grasslands

Grassland communities cover just over 1% of the Plan Area but are scattered throughout the Area. They are most common in the western portion of the Plan Area, especially along the boundary from east of Bakersfield to the southern end of the San Bernardino National Forest.

Overall, approximately 8,000 acres (3.3%) of grassland communities would be impacted under Alternative 4. The majority of impacts to grassland communities would be from solar development in the West Mojave and Eastern Slopes subarea. Impacts would also occur in the Cadiz Valley and Chocolate Mountains, Mojave and Silurian Valley, and Pinto Lucerne Valley and Eastern Slopes subareas. CMAs would be implemented to address breeding, nesting, or roosting species (AM-DFA-AG-2), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects and compensation CMAs would offset the effect (COMP-1 and COMP-2).

Grassland communities provide habitat for the following Covered Species: golden eagle, burrowing owl, mountain plover, Swainson's hawk, and Bendire's thrasher. These communities also provide habitat for desert kit fox (Planning Species). Therefore, impacts to this community may have a negative effect on these species by removing or degrading suitable habitat. However, application of species-specific CMAs would help avoid and minimize that effect and compensation CMAs would offset the effect.

Riparian

Riparian communities cover nearly 6% of the Plan Area but are scattered throughout the Area, but are most common in the southern portion of the Plan Area in the Colorado River area, in the Cadiz and Chocolate Mountains and Imperial Borrego Valley subareas, and along major drainages such as the Mojave, Colorado, and Amargosa Rivers.

Riparian communities include microphyll woodlands, which are important vegetation assemblages often associated with desert washes that are comprised of the Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub natural communities. A subset of these communities would be considered groundwater-dependent vegetation (e.g., mesquite bosques). Under Alternative 4, microphyll woodlands occur within DFAs primarily in the McCoy Valley area in the Cadiz Valley ecoregion subarea.

Impacts to riparian communities, except those impacts determined to be unavoidable, would be avoided under Alternative 4 through application of the riparian CMAs (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). In addition, setbacks from riparian communities would be required that range from 200 feet for Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub to 0.25 mile for Southwestern North American riparian evergreen and deciduous woodland and Southwestern North American riparian/wash scrub. Compensation CMAs would offset any impacts determined to be unavoidable (COMP-1 and COMP-2).

Riparian communities provide habitat for the following Covered Species: California black rail, Gila woodpecker, Yuma clapper rail, least Bell's vireo, southwestern willow flycatcher, western yellow-billed cuckoo, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, and Tehachapi slender salamander. These communities also provide habitat for burro deer (Planning Species). In addition, species associated with desert scrub are also associated with Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub. Avoidance of impacts to riparian communities would benefit these species. Furthermore, there are also CMAs to avoid impacts to riparian species including pre-construction nesting bird surveys for riparian and wetland bird Covered Species. Application of species-specific CMAs would also benefit species associated with riparian communities. Compensation CMAs would offset any impacts determined to be unavoidable.

Wetlands

Wetland communities cover nearly 5% of the Plan Area but are scattered throughout the Area, including the Owens River Valley, and around various dry lakes and playas. The largest single contributor to wetlands in the Plan Area is the open water of the Salton Sea (22% of the wetlands). However, several isolated wetlands occur throughout the Plan Area (e.g. Amargosa WSR) and these are important for their tendency to be populated with locally endemic species of plants and animals.

Overall, approximately 11,000 acres (1.2%) of wetland communities, specifically North American warm desert alkaline scrub, herb playa and wet flat, and open water would be impacted under Alternative 4. All impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep, except those impacts determined to be unavoidable, would be avoided under Alternative 4 through application of the wetland CMAs, including a 0.25-mile setback (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). Over half of the impacts to wetland communities would be in DFAs in open water of the Salton Sea in the Imperial Borrego Valley subarea. Of the remaining impacts to wetland communities, the majority would occur from solar development in the West Mojave and Eastern Slopes and Cadiz Valley and Chocolate Mountains subareas.

CMAs for North American warm desert alkaline scrub and herb playa and wet flat, southwestern North American salt basin and high marsh, and other undifferentiated wetland-related land covers (i.e., "Playa", "Wetland", and "Open Water") would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided riparian or wetland natural communities (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). Compensation CMAs would offset any impacts to these features (COMP-1 and COMP-2).

Wetland communities provide habitat for the following Covered Species: California black rail, Yuma clapper rail, tricolored blackbird, California leaf-nosed bat, pallid bat, Townsend's big-eared bat, desert pupfish, Mohave tui chub, Owens pupfish, and Owens tui chub. In addition, species associated with desert scrub are also associated with Southwestern North American Salt Basin and High Marsh. Avoidance of impacts to wetland communities would benefit these species. Furthermore, there are also CMAs to avoid impacts to wetland species including pre-construction nesting bird surveys for riparian and wetland bird Covered Species. In addition, application of species-specific CMAs would help avoid and minimize impacts to species associated with wetland communities. Compensation CMAs would offset any impacts determined to be unavoidable.

Table IV.7-259
Plan-Wide Impact Analysis for Natural Communities – Alternative 4

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
California forest and woodland						
Californian broadleaf forest and woodland	72,000	40	0	0	0	50
Californian montane conifer forest	78,000	60	10	0	20	80
Chaparral and coastal scrub community (Cismontane scrub)						
Californian mesic chaparral	4,000	0	0	0	0	0
Californian pre-montane chaparral	1,000	0	0	0	0	0
Californian xeric chaparral	24,000	0	0	0	10	10
Central and south coastal California seral scrub	1,000	20	0	0	0	30
Central and South Coastal Californian coastal sage scrub	54,000	1,000	200	0	90	2,000
Western Mojave and Western Sonoran Desert borderland chaparral	24,000	0	0	0	10	20
Desert conifer woodlands						
Great Basin Pinyon - Juniper Woodland	287,000	1,000	100	0	100	1,000
Desert outcrop and badlands						
North American warm desert bedrock cliff and outcrop	1,613,000	8,000	600	400	3,000	12,000

Table IV.7-259
Plan-Wide Impact Analysis for Natural Communities – Alternative 4

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Desert Scrub						
Arizonan upland Sonoran desert scrub	57,000	0	0	0	0	0
Intermontane deep or well-drained soil scrub	106,000	400	30	0	100	500
Intermontane seral shrubland	74,000	3,000	100	0	60	3,000
Inter-Mountain Dry Shrubland and Grassland	437,000	2,000	100	700	500	3,000
Intermountain Mountain Big Sagebrush Shrubland and steppe	76,000	20	0	0	0	20
Lower Bajada and Fan Mojavean - Sonoran desert scrub	10,858,000	52,000	4,000	5,000	16,000	78,000
Mojave and Great Basin upper bajada and toeslope	1,333,000	3,000	400	0	300	4,000
Shadscale - saltbush cool semi-desert scrub	279,000	4,000	90	300	600	4,000
Southern Great Basin semi-desert grassland	100	0	0	0	0	0
Dunes[3]						
North American warm desert dunes and sand flats	282,000	0	0	0	0	0
Grassland						
California Annual and Perennial Grassland	230,000	7,000	300	0	400	7,000
California annual forb/grass vegetation	8,000	300	20	0	0	400
Riparian[3]						
Madrean Warm Semi-Desert Wash Woodland/Scrub	697,000	0	0	0	0	0
Mojavean semi-desert wash scrub	30,000	0	0	0	0	0
Riparian	600	0	0	0	0	0

Table IV.7-259
Plan-Wide Impact Analysis for Natural Communities – Alternative 4

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Sonoran-Coloradan semi-desert wash woodland/scrub	191,000	0	0	0	0	0
Southwestern North American riparian evergreen and deciduous woodland	6,000	0	0	0	0	0
Southwestern North American riparian/wash scrub	66,000	0	0	0	0	0
Wetland[3]						
Arid West freshwater emergent marsh	4,000	0	0	0	0	0
Californian warm temperate marsh/seep	400	0	0	0	0	0
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	310,000	2,000	100	0	200	2,000
Open Water	209,000	3,000	0	2,000	600	6,000
Playa	78,000	0	0	0	10	10
Southwestern North American salt basin and high marsh	261,000	3,000	100	0	100	3,000
Wetland	8,000	100	0	0	40	200
Other Land Cover – Developed and Disturbed Areas						
Agriculture	711,000	33,000	500	8,000	6,000	48,000
Developed and Disturbed Areas	447,000	100	0	50	1,000	1,000
Not Mapped	7,000	10	0	0	0	10
Rural	114,000	1,000	10	400	400	2,000
Total	**19,040,000**	**123,000**	**7,000**	**17,000**	**30,000**	**177,000**

1 Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

2 Solar impacts include ground-mounted distributed generation.

3 Impacts to the dune community, riparian communities, arid west freshwater emergent marsh, and Californian warm temperate marsh/seep would be avoided through implementation of CMAs. Only impacts determined to be unavoidable would occur in these natural communities.

Notes: The natural community classification system is described in Chapter III.7 and follows CDFG 2012. Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as

detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Rare natural communities include natural community alliances with state rarity rankings S1, S2, or S3 (critically imperiled, imperiled, or vulnerable). Of the 51 rare natural community alliances mapped in the Plan Area, 6 rare alliances would be impacted (with more than 5 acres impacted) under Alternative 4, the vast majority of the impact acreage (approximately 4,000 acres) would be comprised of impacts to Joshua tree woodland (*Yucca brevifolia*) occurring in the West Mojave and Eastern Slopes and Pinto Lucerne Valley and Eastern Slopes subareas. CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection that would help avoid and minimize these effects on rare natural communities. Additionally, AM-DFA-ONC-1 and -2 would require inventorying and preserving or transplanting cactus, yuccas, and succulents. While the compensation CMAs would offset the lost habitat acreage of these impacts, the compensation CMAs do not specifically require the replacement of, or mitigation for, specific rare natural community alliances. After application of the CMAs, impacts to rare natural communities from Alternative 4 would be adverse and would require mitigation.

Impact BR-2: Siting, construction, decommissioning, and operational activities would result in adverse effects to jurisdictional waters and wetlands.

Siting, construction, decommissioning, and operations of Covered Activities have the potential to result in adverse effects to federal or state jurisdictional waters and wetlands. In the Plan Area, jurisdictional waters and wetlands would likely include the riparian and wetland communities analyzed under Impact BR-1 and may also include other features including playas, seeps/springs, major rivers, and ephemeral drainage networks.

All Covered Activities would be required to comply with existing, applicable federal and state laws and regulations related to jurisdictional waters and wetlands. Additionally, all impacts to riparian communities would be avoided under Alternative 4 through application of the riparian CMAs including riparian setbacks. All impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep wetlands would be avoided under Alternative 4 through application of the wetland CMAs, including wetland setbacks (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). Approximately 11,000 acres of other wetland communities would be impacted under Alternative 4. See the analysis for the loss of native vegetation provided under BR-1 for a discussion of these potential impacts. All or a portion of the estimated wetland impacts could result in adverse effects to jurisdictional waters and wetlands without compensation. Compensation CMAs would offset any impacts determined to be unavoidable.

Additionally, playas, seeps/springs, major rivers, and ephemeral drainage networks are waters and wetland features that provide hydrological functions for jurisdictional waters and wetlands. Adverse effects to these features would have the potential to impact the jurisdictional waters and wetland they support.

Playa

Approximately 1% (3,000 acres) of playa would be impacted by Covered Activities under Alternative 4. The majority of impacts would be associated with solar (approximately 2,000 acres), with approximately 200 acres of wind impacts, approximately 300 acres of transmission impacts, and 10 acres of geothermal impacts. Ecoregion subareas of potential impacts to playas include the Cadiz Valley and Chocolate Mountains, Mojave and Silurian Valley, Owens River Valley, Pinto Lucerne Valley and Eastern Slopes, Providence and Bullion Mountains, and West Mojave and Eastern Slopes.

Application of species-specific CMAs would help avoid and minimize impacts to species associated with playas (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). CMAs would also require compliance with all applicable laws and regulations pertaining to wetlands and waters, including playas (AM-PW-9 and AM-LL-2). Compensation CMAs would offset impacts to these features (COMP-1 and COMP-2).

Seep/Spring

Seeps occur within DFAs and transmission corridors and potential impacts to seep/spring locations have the potential to occur under Alternative 4 in the following ecoregion subareas: Imperial Borrego Valley, Mojave and Silurian Valley, Owens River Valley, and Pinto Lucerne Valley. Impacts to seeps and springs would be adverse absent implementation of avoidance measures. Impacts to seep/spring locations and associated Covered Species and hydrological functions would be avoided through adherence to avoidance and minimization CMAs, including habitat assessments and avoidance of seeps with 0.25 mile setbacks (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). Compensation CMAs would offset any impacts determined to be unavoidable (COMP-1 and COMP-2).

Major Rivers

Under Alternative 4, there would no direct impacts to any of the four major rivers within the Plan Area – Amargosa, Colorado, Mojave, and Owens Rivers. However, changes in hydrological conditions associated with development could adversely impact these rivers. Riparian CMAs would require avoidance of these features with setbacks (AM-DFA-RIPWET-1).

Ephemeral Drainages

Ephemeral drainages occur throughout the Plan Area, and some of these features could be determined to state or federal jurisdictional waters. Impacts to ephemeral drainages would likely occur from Covered Activities. Application of riparian avoidance CMAs (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9) would avoid and minimize impacts to a portion of the ephemeral drainages within DFAs. Additionally, all Covered Activities would be required to comply with existing, applicable federal and state laws and regulations related to jurisdictional waters and wetlands.

Impact BR-3: Siting, construction, decommissioning, and operational activities would result in degradation of vegetation.

Siting, construction, decommissioning, and operational Covered Activities would result in the degradation of vegetation through the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants. The degree to which these factors contribute to the degradation of vegetation corresponds to the distribution of Covered Activities in the Plan Area that would result in dust, fire, and introduction of invasive plants or that would use dust suppressants and implement fire management. As described in Section IV.7.2.1, the extent of some of these adverse effects may occur at or beyond the source of these effects, the project footprint, or the project area depending on the type of effect and other environmental considerations. As such, the potential adverse effects caused by these factors were evaluated using the overlap of the natural community mapping and the estimated distribution of Covered Activities across subareas.

Under Alternative 4, approximately 8% of the total Plan Area would be DFAs that allow renewable energy development. Based on the planned renewable energy generation and transmission under Alternative 4, the vegetation degradation from dust, dust suppressants, fire, fire management, and invasive plants would collectively result in the terrestrial operational impacts shown in Table IV.7-260. These impacts would mostly occur in the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, and West Mojave and Eastern Slopes, subareas. As a result, these subareas would have the greatest potential to result in the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants.

Table IV.7-260
Plan-Wide Terrestrial Operational Impacts – Alternative 4

Ecoregion Subarea	Solar Impact[1] (acres)	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Cadiz Valley and Chocolate Mountains	38,000	12,000	-	18,000	68,000
Imperial Borrego Valley	31,000	300	16,000	6,000	53,300
Kingston and Funeral Mountains	600	-	-	-	600
Mojave and Silurian Valley	3,000	-	-	600	3,600
Owens River Valley	2,000	-	1,000	900	3,900
Panamint Death Valley	800	-	-	200	1,000
Pinto Lucerne Valley and Eastern Slopes	6,000	6,000	-	2,000	14,000
Piute Valley and Sacramento Mountains	-	-	-	-	-
Providence and Bullion Mountains	1,000	-	-	300	1,300
West Mojave and Eastern Slopes	41,000	13,000	-	1,000	55,000
Total	**123,000**	**31,000**	**17,000**	**30,000**	**201,000**

[1] Solar impacts include ground-mounted distributed generation.

Notes: Terrestrial operational impacts collectively refers to vegetation degradation impacts (BR-3) from dust, dust suppressants, fire, fire management, and invasive plants and wildlife impacts (BR-4) from creation of noise, predator avoidance behavior, lighting and glare. For the purposes of analysis, terrestrial operational impacts were quantified using the project area extent for solar and geothermal, using 25% of the project area for wind, and the right-of-way area for transmission.

Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation, short-term and long-term wind (excluding project area impacts), geothermal project area, and transmission impacts. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Dust and Dust Suppressants

Overall, most natural communities and plant Covered Species would be susceptible to degradation as a result of dust, with natural communities containing Mojave desert shrubs particularly susceptible to altered water usage as a result of dust deposition. These natural communities are primarily affected by Covered Activities in the Cadiz Valley and Chocolate Mountains as well as the West Mojave and Eastern Slopes subareas. Plant Covered Species that could also be affected by abrasion, vegetation loss, root exposure, and burial as a result of dust are prevalent near the DFAs. The West Mojave and Eastern Slopes subarea and to a lesser extent the Pinto Lucerne Valley and Eastern Slopes subarea would contain the most impacts to plant Covered Species habitat throughout the Plan Area. Therefore, considering the distribution of DFAs and these sensitive natural communities and plant Covered Species the West Mojave and Eastern Slopes subarea would experience the greatest magnitude of

dust-related impacts. Vegetation degradation as a result of dust would also be prevalent in the Cadiz Valley and Chocolate Mountains subarea to a lesser extent.

The application of dust suppressants, which would reduce dust emissions, is a common management practice used during construction and operations and is a Covered Activity under the Plan. The use of dust suppressants has been shown to effectively reduce dust. Dust-related degradation of vegetation would be further minimized with the incorporation of avoidance and minimization CMAs. The Plan-wide avoidance and minimization CMAs would generally identify vegetation in the project area (AM-PW-1), utilize standard practices to minimize the amount of exposed soils (AM-PW-14) and reduce dust caused by soil erosion (AM-PW-10). Additionally, Alternative 4 would implement CMAs that applicable in the DFAs would also serve to reduce vegetation degradation from dust including AM-DFA-ONC-1 and AM-DFA-ONC-2, which would require habitat assessments of natural communities and protection/salvage plans for particular plants found on project sites. CMAs AM-DFA-PLANT-1 through AM-DFA-PLANT-3 would also result in the surveying of plant Covered Species, avoidance and a 0.25 mile setback from plant Covered Species occurrences, and would place an impact caps on suitable habitat for plant Covered Species. Furthermore, various CMAs would reduce potential vegetation degradation from dust created by operation and maintenance of transmission in the reserve design envelope including measures for avoidance of plant Covered Species by substations, setbacks for plant Covered Species, and impact caps on suitable habitat for plant Covered Species (AM-RES-RL-PLANT-1 through AM-RES-RL-PLANT-3). The CMA AM-TRANS-4 would restrict transmission to within designated utility corridors, thereby minimizing the creation of dust from exposed soils as a result of transmission throughout the Plan Area.

The application of dust suppressants can result in chemical and physical changes to an ecosystem, alter hydrological function of soils and drainage areas, and increase pollutant loads in surface water. As a result, riparian and wetland natural communities are the most likely vegetation to be affected by the use of dust suppressants. These natural communities are most prevalent near DFAs in the Imperial Borrego Valley subarea and to a lesser extent in the Cadiz Valley and Chocolate Mountains and West Mojave and Eastern Slopes subareas. Plant Covered Species near the DFAs in the West Mojave and Eastern Slopes subarea and to a lesser extent in the Pinto Lucerne Valley and Eastern Slopes subarea would also experience a large degree of vegetation degradation from the use of dust suppressants. As such, the West Mojave and Eastern Slopes and Imperial Borrego Valley subareas would contain the largest potential amount of vegetation degradation because of dust suppressants.

Avoidance and minimization CMAs implemented as part of Alternative 4, including AM-PW-9 and AM-PW-10, would utilize standard practices to reduce erosion and runoff of dust suppressant outside of areas where they are applied. The CMA AM-DFA-RIPWET-1 would

also establish setbacks and avoidance requirements for all riparian natural communities and some wetland natural communities. Therefore, these measures would minimize potential adverse effects of dust suppressants used during siting, construction, and operational Covered Activities.

Fire and Fire Management

Anthropogenic ignitions of fires that could result from operational and maintenance activities associated with renewable energy facilities could destroy the natural communities found in the Plan Area. Desert scrub natural communities are naturally slow to recover from fire episodes and are more vulnerable to proliferation of non-native grasses that can often successfully compete with and overcome native assemblages. The addition of non-native grasses can create a positive feedback loop of increasing fire frequency and intensity, resulting in significant and potentially permanent community type conversion. Within the Plan Area desert scrub natural communities are primarily affected by Covered Activities within the West Mojave and Eastern Slopes and the Cadiz Valley and Chocolate Mountains subareas. Impacts to desert scrub natural communities would also occur to a lesser extent in the Imperial Borrego Valley and Pinto Lucerne Valley and Eastern Slopes subareas. With the distribution of renewable energy development and these natural communities, the greatest magnitude of vegetation degradation as a result of fire would occur in the West Mojave and Eastern Slopes and Cadiz Valley and Chocolate Mountains subareas.

Construction and maintenance of fire breaks and other fire management techniques would typically result in the removal of vegetation from woodland, chaparral, and grassland natural communities. However, target fuels reductions in areas of high incidence of non-native, invasive, species (e.g. salt cedar hot spots) can have a beneficial effect on native habitats. Within the Plan Area the potential impacts from Covered Activities on California forest and woodland natural communities, chaparral and coastal scrubs, and grassland natural communities affected by Covered Activities would occur in the West Mojave and Eastern Slopes subarea. Therefore, with the distribution of renewable energy development and the location of these natural communities that are sensitive to fire management techniques, the primary area of vegetation degradation would be located in the West Mojave and Eastern Slopes subarea. The potential degradation of vegetation due to fire and fire management would vary depending on project-specific factors, such as size of the project footprint and proximity to fire prone areas. However, under Alternative 4 avoidance and minimization CMAs would be implemented to reduce the potential adverse operational effects of fire and fire management. Specifically, AM-PW-12 would require projects to use standard practices for fire prevention/protection that would minimize the amount of vegetation clearing and fuel modification. Additionally AM-RES-RL-ICS-5 would require fire suppression activities to minimize the amount of desert tortoise habitat burned in the reserve design envelope. These measures would minimize the amount of vegetation degradation from fire and fire management during siting, construction, and operational Covered Activities.

Invasive Plants

The introduction of invasive plants can be caused by siting, construction, and operational Covered Activities including transportation of invasive plants on the undercarriage of vehicles, creation of disturbed areas, and other environmental changes that favor invasive plant growth. Invasive plants can degrade vegetation by increasing the fuel load and the frequency of fires in plant communities and may induce allelopathic effects that hinder the growth or establishment of other plant species. Most vegetation, including natural communities and plant Covered Species, are generally susceptible to the adverse effects of invasive plants. As such, the most vegetation degradation caused by introduction of invasive plants would occur in the areas with the greatest amount of natural community and plant Covered Species impacts due to renewable energy development. Under Alternative 4 this would occur in the West Mojave and Eastern Slopes as well as the Cadiz Valley and Chocolate Mountains subareas, would contain most of the impacts to natural communities.

The potential vegetation degradation effects that could result from siting, construction, and operational Covered Activities would be minimized through implementation of avoidance and minimization CMAs under Alternative 4. Specifically, the Plan-wide CMA AM-PW-7 would ensure the timely restoration of temporarily disturbed areas that could otherwise promote invasive plants during operations. Additional CMAs would require the use of standard practices to control weeds and invasive plants (AM-PW-11) and require the responsible use of herbicides to minimize potential vegetation degradation (AM-PW-15) for all Covered Activities throughout the Plan Area.

Impact BR-4: Siting, construction, decommissioning, and operational activities would result in loss of listed and sensitive plants; disturbance, injury, and mortality of listed and sensitive wildlife; and habitat for listed and sensitive plants and wildlife.

The following provides an analysis of the impacts of the development of Covered Activities on sensitive plants and wildlife and their habitat in the Plan Area, including Covered Species and Non-Covered Species. In addition to the analysis of the loss of sensitive species and their habitat provided here under Impact BR-4, impacts to nesting birds are addressed under Impact BR-5, impacts on wildlife movement are addressed under Impact BR-6, impacts of habitat fragmentation are addressed under Impact BR-7, impacts of increased predation are addressed under Impact BR-8, and impact of operations on avian, bat, and insect species are addressed under Impact BR-9.

The impact analysis under Impact BR-4 includes the following subsections:

- Covered Species Habitat Impact Analysis by Ecoregion Subarea
- Specific Covered Species Impact Analyses
- Indirect and Terrestrial Operational Impact Analysis
- Non-Covered Species Impact Analysis

Covered Species Habitat Impact Analysis by Ecoregion Subarea

Impacts to plant and wildlife species and their habitat would result from the implementation of Covered Activities. Table IV.7-261 provides the Plan-wide impact analysis for Covered Species habitat. As described in Section IV.7.1.1, the reported impact acreage is based on the overlap of the DFAs and the modeled Covered Species habitat times the proportion of the impacts from Covered Activity development anticipated with the DFA. Most of the impacts to plant and wildlife species and their habitat under Alternative 4 would occur in the Imperial Borrego Valley, West Mojave and Eastern Slopes, and Cadiz Valley and Chocolate Mountains subareas as described below. Impacts to plant and wildlife species and their habitat under Alternative 4 would also occur in the following subareas: Kingston and Funeral Mountains, Mojave and Silurian Valley, Owens River Valley, Panamint Death Valley, Pinto Lucerne Valley and Eastern Slopes, and Providence and Bullion Mountains. Supplemental impact analysis tables for impacts to Covered Species habitat by ecoregion subarea are provided in Appendix R2.

West Mojave and Eastern Slopes Ecoregion Subarea

Renewable energy development in the West Mojave and Eastern Slopes subarea would mostly be from solar development, but would also include impacts from wind and transmission development. Typical impacts from these Covered Activities on plant and wildlife species and their habitat is described in Section IV.7.2. Impacts to suitable habitat for amphibians and reptiles would occur in this subarea, including Agassiz's desert tortoise, Mojave fringe-toed lizard, and Tehachapi slender salamander. The siting of the DFAs under Alternative 4 largely avoid habitat for Mojave fringe-toed lizard and Tehachapi slender salamander, and CMAs requiring avoidance of and setbacks from riparian habitat, wetland habitat, and dune habitat (AM-DFA-RIPWET-1 and AM-DFA-DUNE-1) would further avoid and minimize the impacts on these species to less than the acreage reported in Table IV.7-261.

There are impacts to suitable habitat for several bird Covered Species in the West Mojave and Eastern Slopes subarea, including Bendire's thrasher, burrowing owl, California condor, golden eagle, least Bell's vireo, mountain plover, southwestern willow flycatcher, Swainson's hawk, tricolored blackbird, and western yellow-billed cuckoo. CMAs requiring avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further avoid and minimize the impacts on least Bell's vireo, southwestern willow flycatcher, tricolored blackbird, and western yellow-billed cuckoo to less than the acreage reported in Table IV.7-261. Additionally, the CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs (AM-DFA-AG-2).

Suitable habitat for bighorn sheep, desert kit fox, Mohave ground squirrel, pallid bat, and Townsend's big-eared bat would be impacted in this subarea. The siting of the DFAs under Alternative 4 largely avoid habitat for bighorn sheep. The CMAs require avoidance of and

setbacks from riparian and wetland habitat (AM-DFA-RIPWET-1) that would further reduce the impacts on these habitats used by Mohave ground squirrel, pallid bat, and Townsend's big-eared bat to less than the acreage reported in Table IV.7-261. Compensation CMAs would offset habitat loss for these species.

Suitable habitat for the following plant species would be impacted in the West Mojave and Eastern Slopes subarea: alkali mariposa-lily, Bakersfield cactus, Barstow woolly sunflower, desert cymopterus, Mojave monkeyflower, Mojave tarplant, and Owens Valley checkerbloom. Although modeled suitable habitat for these species may be impacted by Covered Activities in this subarea, the CMAs require surveys for plant Covered Species for all Covered Activities, and the CMAs requiring avoidance of and setbacks from occupied habitat (AM-DFA-PLANT-1 through AM-DFA-PLANT-3) would further reduce the impacts on these species to less than the acreage reported in Table IV.7-261.

Cadiz Valley and Chocolate Mountains Ecoregion Subarea

Renewable energy development within the Cadiz Valley and Chocolate Mountains subarea would be primarily from solar energy development, but would also include impacts from wind and transmission. Impacted suitable habitat would be mostly desert scrub in this subarea. The Cadiz Valley and Chocolate Mountains subarea provides suitable habitat for amphibians and reptiles, including Agassiz's desert tortoise and Mojave fringe-toed lizard that would be impacted. The siting of the DFAs under Alternative 4 largely avoid habitat for Mojave fringe-toed lizard, and CMAs require avoidance of and setbacks from dune habitat (AM-DFA-DUNE-1 through AM-DFA-DUNE-3) would further avoid and minimize the impacts on this species to less than the acreage reported in Table IV.7-261. Compensation CMAs would offset habitat loss for these species.

Impacts would occur to the following covered bird species in this subarea: Bendire's thrasher, burrowing owl, California black rail, Gila woodpecker, golden eagle, greater sandhill crane, mountain plover, and western yellow-billed cuckoo. CMAs require avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further avoid and minimize the impacts on California black rail, and western yellow-billed cuckoo to less than the acreage reported in Table IV.7-261.

Impacts to suitable habitat for the following Covered mammals would occur in the Cadiz Valley and Chocolate Mountains subarea: bighorn sheep, California leaf-nosed bat, pallid bat, and Townsend's big-eared bat. Impacts to suitable habitat for Planning Species burro deer and desert kit fox would also occur in this subarea. The siting of the DFAs under Alternative 4 largely avoid habitat for bighorn sheep. The CMAs require avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further reduce the impacts on these habitats used by California leaf-nosed bat, pallid bat, and Townsend's big-eared bat to less than the acreage reported in Table IV.7-261.

Imperial Borrego Valley Ecoregion Subarea

Renewable energy development within the Imperial Borrego Valley subarea would be primarily from solar energy development, but would also include impacts from wind, geothermal, and transmission development. Impacts would occur to desert outcrop and badland, desert scrub, and wetland communities. The Imperial Borrego Valley subarea provides suitable habitat for Agassiz's desert tortoise and flat-tailed horned lizard that would be impacted. The siting of the DFAs under Alternative 4 largely avoid habitat for flat-tailed horned lizard, and CMAs require avoidance of and setbacks from dune habitat (AM-DFA-DUNE-1 through AM-DFA-DUNE-3) would further avoid and minimize the impacts on this species to less than the acreage reported in Table IV.7-261.

Impacts would occur to suitable habitat for the following covered bird species in this subarea: Bendire's thrasher, burrowing owl, California black rail, Gila woodpecker, golden eagle (foraging), greater sandhill crane, least Bell's vireo, mountain plover, southwestern willow flycatcher, Swainson's hawk, and Yuma clapper rail. CMAs requiring avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further avoid and minimize the impacts on southwestern willow flycatcher, least Bell's vireo, California black rail, and Yuma clapper rail to less than the acreage reported in Table IV.7-261. Additionally, the CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs (AM-DFA-AG-2).

Impacts to suitable habitat for desert pupfish, the only fish species with suitable habitat in this subarea, would total approximately 200 acres. The avoidance and setback provisions for managed wetlands and agricultural drains (AM-DFA-RIPWET-1) would conserve wetland and riparian features within the agricultural matrix and provide conservation benefits to desert pupfish.

Only minimal impacts (about 70 acres) would occur to bighorn sheep mountain habitat in this subarea. Impacts to suitable habitat for other covered mammals species would occur for California leaf-nosed bat, pallid bat, and Townsend's big-eared bat. In addition, suitable habitat for burro deer and desert kit fox (Planning Species) would also occur in this subarea. The siting of the DFAs under Alternative 4 largely avoid habitat for bighorn sheep. The CMAs require avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further reduce the impacts on these habitats used by California leaf-nosed bat, pallid bat, and Townsend's big-eared bat to less than the acreage reported in Table IV.7-261.

Table IV.7-261
Plan-Wide Impact Analysis for Covered Species Habitat – Alternative 4

Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Amphibian/Reptile						
Agassiz's desert tortoise	9,858,000	34,000	3,000	1,000	7,000	45,000
Flat-tailed horned lizard	758,000	6,000	10	6,000	2,000	14,000
Mojave fringe-toed lizard	1,094,000	14,000	900	-	6,000	21,000
Tehachapi slender salamander	48,000	100	20	-	-	200
Bird						
Bendire's thrasher	2,141,000	4,000	500	700	900	6,000
Burrowing owl	5,269,000	83,000	4,000	12,000	13,000	113,000
California black rail	197,000	2,000	-	900	400	3,000
California condor	1,240,000	21,000	2,000	100	600	23,000
Gila woodpecker	106,000	400	-	100	100	600
Golden eagle–foraging	10,747,000	24,000	2,000	1,000	9,000	36,000
Golden eagle–nesting	4,443,000	2,000	200	20	2,000	4,000
Greater sandhill crane	617,000	29,000	300	8,000	5,000	43,000
Least Bell's vireo	226,000	200	10	20	40	300
Mountain plover	828,000	38,000	600	8,000	5,000	53,000
Southwestern willow flycatcher	317,000	4,000	50	2,000	800	7,000
Swainson's hawk	1,455,000	36,000	1,000	5,000	3,000	45,000
Tricolored blackbird	271,000	10,000	300	30	100	10,000
Western yellow-billed cuckoo	152,000	300	10	-	50	300
Yuma clapper rail	51,000	30	-	10	10	50
Fish						
Desert pupfish	8,000	100	-	50	30	200
Mohave tui chub	300	-	-	-	-	-
Owens pupfish	18,000	40	-	-	30	70
Owens tui chub	17,000	40	-	-	30	70

Table IV.7-261
Plan-Wide Impact Analysis for Covered Species Habitat – Alternative 4

Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Mammal						
Bighorn sheep – inter-mountain habitat	3,854,000	4,000	300	100	2,000	6,000
Bighorn sheep – mountain habitat	6,649,000	3,000	500	10	3,000	6,000
California leaf-nosed bat	7,132,000	28,000	2,000	3,000	14,000	46,000
Mohave ground squirrel	2,383,000	22,000	2,000	1,000	2,000	27,000
Pallid bat	16,411,000	69,000	5,000	7,000	22,000	103,000
Townsend's big-eared bat	14,677,000	69,000	5,000	7,000	20,000	102,000
Plant						
Alkali mariposa-lily	119,000	3,000	100	-	70	3,000
Bakersfield cactus	278,000	5,000	500	-	30	5,000
Barstow woolly sunflower	154,000	500	50	-	30	600
Desert cymopterus	205,000	800	10	-	20	900
Little San Bernardino Mountains linanthus	289,000	400	80	-	80	600
Mojave monkeyflower	161,000	700	50	-	100	900
Mojave tarplant	265,000	400	40	70	100	700
Owens Valley checkerbloom	147,000	300	-	40	200	600
Parish's daisy	188,000	700	200	-	200	1,000
Triple-ribbed milk-vetch	8,000	-	-	-	-	-

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

[2] Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Specific Covered Species Impact Analyses

Desert Tortoise

For Agassiz's desert tortoise, desert tortoise important areas were identified that include tortoise conservation areas (TCAs), desert tortoise linkages, and desert tortoise high priority habitat (see desert tortoise BGOs in Appendix C).

Under Alternative 4, DFAs occur within TCAs only in the northern Fremont Valley converted to intensive agriculture. DFAs abut TCAs in the following areas: in the West Mojave – 2 ecoregion subunit (the Desert Tortoise Research Natural Area), in the Pinto – 1 ecoregion subunit in upper Lucerne Valley (Ord-Rodman), and in the Cadiz – 1 ecoregion subunit in east Riverside (Chuckwalla). Impacts from anticipated transmission development would occur in the Superior Cronese TCA and Chuckwalla TCA under Alternative 4.

Under Alternative 4, DFAs overlap desert tortoise linkages in the following areas: in the Kingston -1 ecoregion subunit in Pahrump Valley, in the Cadiz – 1 ecoregion subunit in the Chuckwalla to Chemehuevi linkage, in the Pinto – 1 ecoregion subunit in the Ord Rodman to Joshua Tree National Park linkage, and in the West Mojave – 5 ecoregion subunit in the Fremont Kramer to Ord Rodman linkage.

Table IV.7-262 provides an impact analysis for these desert tortoise important areas, organized by desert tortoise Recovery Units: Colorado Desert, Eastern Mojave, and Western Mojave. Within the Colorado Desert Recovery Unit, approximately 15,000 acres of TCAs, linkage habitat, and high priority habitat would be impacted under Alternative 4. Within the Eastern Mojave Recovery Unit, approximately 300 acres of linkage would be impacted under Alternative 4. Within the Western Mojave Recovery Unit, approximately 11,000 acres of TCAs and linkage habitat would be impacted under Alternative 4.

Table IV.7-262
Plan-Wide Impact Analysis for Desert Tortoise Important Areas – Alternative 4

Recovery Unit	Desert Tortoise Important Areas	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Colorado Desert	High Priority Habitat	387,000	3,000	**300**	-	90	4,000
	Linkage	469,000	900	**70**	-	20	900
	TCA	3,130,000	700	**50**	-	9,000	10,000
Colorado Desert Total		*3,985,000*	*5,000*	**400**	-	*10,000*	*15,000*
Eastern Mojave	Linkage	784,000	300	-	-	-	300
	TCA	2,096,000	-	-	-	-	-

Table IV.7-262
Plan-Wide Impact Analysis for Desert Tortoise Important Areas – Alternative 4

Recovery Unit	Desert Tortoise Important Areas	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Eastern Mojave Total		*2,880,000*	*300*	-	-	-	*300*
Western Mojave	Linkage	1,204,000	8,000	**900**	-	800	10,000
	TCA	2,313,000	600	**50**	-	600	1,000
Western Mojave Total		*3,517,000*	*8,000*	**900**	-	*1,000*	*11,000*
Total		**10,382,000**	**14,000**	**1,000**	**-**	**11,000**	**26,000**

1 Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
2 Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Approximately 4,143,000 acres of USFWS-designated critical habitat for desert tortoise occurs in the Plan Area (excluding military, Open OHV Areas, and tribal lands). Although the TCAs include desert tortoise critical habitat, these two areas are not entirely the same geographically. Alternative 4 would result in approximately 11,000 acres (approximately 0.3% of the total critical habitat for desert tortoise in the Plan Area) of impact to desert tortoise critical habitat. Approximately 94% (10,000 acres) of the impacts would occur in the Chuckwalla critical habitat unit and the majority of that impact (9,500 acres) from transmission impacts. Approximately 400 acres of impact from transmission development would occur in the Superior-Cronese critical habitat unit, and approximately 200 acres of impact would occur in the Ord-Rodman critical habitat unit from transmission development. As described in Volume II, transmission impacts assume resources are impacted within the entire right-of-way width that varies by transmission line voltage. Transmission development does not preclude the use of the area by tortoise, but does lead to the potential for increased risk of predation or striking by vehicles associated with access roads to support transmission lines.

CMAs would require avoidance of TCAs, except for impacts associated with transmission or impacts in disturbed portions of TCAs (AM-DFA-ICS-7 and AM-DFA-ICS-10). Additionally, the CMAs would prohibit impacts that affect the viability of desert tortoise linkages (AM-DFA-ICS-8 and AM-DFA-ICS-9). Compensation CMAs would be required for impacts to desert tortoise, including desert tortoise important areas. The DRECP Plan-Wide Reserve Design Envelope for Alternative 4 was developed, in part, to conserve and avoid impacts to habitat linkages and

wildlife movement, including the desert linkage network; however, the inclusion of DRECP Variance Lands in this alternative and the uncertainty of future management of these lands undermines the strength of the DRECP Plan-Wide Reserve Design Envelope for Alternative 4. Under Alternative 4, the designated DRECP Variance Lands have the potential to undermine the integrity and long-term conservation value of the conservation strategy for desert tortoise.

Flat-tailed Horned Lizard

For flat-tailed horned lizard, flat-tailed horned lizard (FTHL) management areas were identified in the FTHL Rangewide Management Strategy (RMS). The FTHL management areas cover approximately 393,000 acres in the Plan Area (excluding military, Open OHV Areas, and tribal lands) and include the following units: Borrego Badlands, East Mesa, Ocotillo Wells, West Mesa, and Yuha Basin. Approximately 5,000 acres of impact to FTHL management areas would result from Covered Activities under Alternative 4, in the East Mesa, Ocotillo Wells, West Mesa, and Yuha Basin units. Avoidance and minimization CMAs (AM-DFA-ICS-16 and AM-PW-1 through 17) would avoid and minimize impacts to flat-tailed horned lizard. Compensation CMAs would offset habitat loss for flat-tailed horned lizard.

Bendire's Thrasher

Bendire's thrasher habitat occurs in scattered locations across the Mojave and Sonoran/Colorado deserts of the Plan Area. As shown in Table IV.7-261, approximately 6,000 acres of impacts to habitat for Bendire's thrasher would occur under Alternative 4. Avoidance and minimization CMAs (AM-DFA-ICS-17 and AM-PW-1 through 17) would avoid and minimize impacts to Bendire's thrasher. Compensation CMAs would offset habitat loss for Bendire's thrasher.

California Condor

California condor nesting has not been documented in the Plan Area and condor use of the Plan Area is limited to foraging and temporary roosting. As shown in Table IV.7-261, approximately 23,000 acres of impacts to potential foraging and temporary roosting habitat for California condor would occur throughout the Plan Area. As specified in AM-DFA-ICS-18, take of California condor will be avoided by Covered Activities. Additionally, the other condor CMAs (AM-DFA-ICS-19 through 25) and the Plan-wide avoidance and minimization CMAs (AM-PW-1 through 17) would further avoid and minimize impacts to California condor. Compensation CMAs would offset foraging and temporary roosting habitat loss for California condor.

Golden Eagle

In addition to the analysis of impacts to nesting and foraging habitat summarized in Table IV.7-261, a territory-based analysis was conducted for golden eagle (see methods and results in the Chapter IV.7 portion of Appendix R2). Using the golden eagle nest database, golden eagle territories were identified and individually buffered by 1 mile (representing breeding areas around known nests) and 4 miles (representing use areas around known nests). From the 420 nest locations known from the Plan Area, a total of 161 territories were identified in available lands of the Plan Area. Under Alternative 4, 38 territories have DFAs or transmission corridors within 1 mile of a nest. Implementation of the CMAs for golden eagles (AM-DFA-ICS-2) would prohibit siting or construction of Covered Activities within 1 mile of an active golden eagle nest; therefore, impacts within 1 mile of these golden eagle territories would be avoided. Under Alternative 4, 71 territories have DFAs or transmission corridors within 4 miles of nest, and the use area of these territories could be impacted through harassment, increased risk of striking hazards, and reduced foraging opportunities by Covered Activities depending of the siting of specific projects. The CMAs for golden eagles (Section II.3.1.2.5) and the approach to golden eagles (see Appendix H) describes how the impact to golden eagles would be avoided, minimized, and compensated. Based on the 2013 analysis, no more than 15 golden eagles per year in 2014 would be allowed to be taken within the Plan Area, which would be reassessed annually.

Desert Bighorn Sheep

For desert bighorn sheep, bighorn sheep mountain habitat and intermountain (linkage) habitat have been identified in the Plan Area. Under Alternative 4, approximately 6,000 acres of mountain habitat and 6,000 acres of intermountain habitat would be impacted. A majority of these impacts would occur in the Pinto Lucerne Valley and Eastern Slopes ecoregion subarea in the Lucerne Valley area and in the Cadiz Valley and Eastern Slope ecoregion subarea in the intermountain linkage across the I-10 corridor in East Riverside SEZ area. Alternative 4 identified DFAs that largely avoid impacts to bighorn sheep mountain and intermountain habitat; however, impacts would occur in the Pinto Lucerne Valley and Eastern Slopes subarea. Avoidance, minimization, and compensation CMAs have been developed to offset the loss of habitat for bighorn sheep.

Although the Peninsular bighorn sheep Distinct Population Segment (DPS) is not a Covered Species, approximately 47,000 acres of USFWS-designated critical habitat for the Peninsular bighorn sheep DPS occurs in the Plan Area (excluding military, Open OHV Areas, and tribal lands). These critical habitat units include Carrizo Canyon and South Santa Rosa Mountain. Alternative 4 would not result in any impacts to critical habitat for the Peninsular bighorn sheep DPS.

Mohave Ground Squirrel

For Mohave ground squirrel, Mohave ground squirrel important areas were identified that include key population centers, linkages, expansion areas, and climate change extension areas (see Mohave ground squirrel BGOs in Appendix C).

Under Alternative 4, impacts to key population centers for Mohave ground squirrel would occur primarily in the Panamint – 1 and Owens – 1 ecoregion subunits. Impacts to Mohave ground squirrel linkages under Alternative 4 would occur primarily in the Owens – 1 ecoregion subunit. Impacts to Mohave ground squirrel expansion areas would occur primarily in the West Mojave – 2, West Mojave – 4, and West Mojave – 6 ecoregion subunits and impacts to the climate change extension areas would occur only in a limited area of the Owens – 1 ecoregion subunit.

Table IV.7-263 provides an impact analysis for these Mohave ground squirrel important areas. The CMAs for Mohave ground squirrel would require avoidance of impacts that affect the viability of linkages (AM-DFA-ICS-36 through AM-DFA-ICS-43). A total of approximately 8,000 acres of impact to key population centers, linkages, expansion areas, and climate change extension areas would occur under Alternative 4. Compensation CMAs would be required for impacts to Mohave ground squirrel, including Mohave ground squirrel important areas.

Table IV.7-263
Plan-Wide Impact Analysis for Mohave Ground Squirrel Important Areas – Alternative 4

Mohave Ground Squirrel Important Area Type	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Key Population Center	507,000	1,000	10	100	500	2,000
Linkage	386,000	500	-	600	400	2,000
Expansion Area	552,000	3,000	90	400	200	3,000
Climate Change Extension	224,000	800	-	80	300	1,000
Total	**1,669,000**	**5,000**	**100**	**1,000**	**1,000**	**8,000**

1 Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
2 Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Dune Covered Species[1]

Dune Covered Species include Mojave fringe-toed lizard. Although Table IV.7-261 shows impacts to Mojave fringe-toed lizard, impacts to the primary habitat areas used by these species would be avoided through the CMAs that require avoidance of and setbacks from dunes (AM-DFA-DUNE-1 through 3). Additionally, the Plan-wide and landscape-level avoidance and minimization CMAs (AM-PW-1 through 17 and AM-LL-3) would further avoid and minimize impacts to dune Covered Species. Compensation CMAs would offset habitat loss for dune Covered Species.

Riparian and Wetland Covered Species[2]

Covered Species associated with riparian and wetland habitats include Tehachapi slender salamander, California black rail, Gila woodpecker, least Bell's vireo, southwestern willow flycatcher, tricolored blackbird, western yellow-billed cuckoo, Yuma clapper rail, Mohave tui chub, Owens pupfish, and Owens tui chub. Although Table IV.7-261 shows impacts to suitable habitat for some of these riparian and wetland Covered Species, impacts to the primary habitat areas used by these species would be avoided through the CMAs that require avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1 through 9). Additionally, the Plan-wide and landscape-level avoidance and minimization CMAs (AM-PW-1 through 17 and AM-LL-2) would further avoid and minimize impacts to riparian and wetland Covered Species. Compensation CMAs would offset habitat loss for these species.

Approximately 6,000 acres of USFWS-designated critical habitat for southwestern willow flycatcher occurs in the Plan Area (excluding military, Open OHV Areas, and tribal lands). These critical habitat units include Amargosa River, Mojave River, and Willow Creek. Alternative 4 would not result in any impacts to critical habitat for southwestern willow flycatcher.

Approximately 800 acres of USFWS-designated critical habitat for desert pupfish occurs in the Plan Area (excluding military, Open OHV Areas, and tribal lands). These critical habitat units include Carrizo Wash, Fish Creek Wash, and San Felipe Creek. Alternative 4 would not result in any impacts to critical habitat for desert pupfish.

The USFWS proposed to designate yellow-billed cuckoo critical habitat on August 15, 2014 at the time the DRECP Draft EIR/EIS was going to print. As such, the proposed yellow-billed

1 Flat-tailed horned lizard and plant Covered Species are also known to be associated with dunes but these species are addressed separately.

2 Some of the riparian and wetland Covered Species discussed here also use other non-wetland and non-riparian natural communities.

cuckoo critical habitat was not addressed in the Draft EIR/EIS, but will be addressed in the Final EIR/EIS.

Covered Species associated with Agricultural Lands[3]

Covered Species associated with agricultural lands include burrowing owl, greater sandhill crane, mountain plover, Swainson's hawk, and desert pupfish. As shown in Table IV.7-261, impacts to Covered Species associated with agricultural lands would occur, primarily in the Imperial Valley, Palo Verde Valley, and Antelope Valley. Specific surveys, setbacks, and other CMAs have been developed to avoid and minimize impacts of Covered Activities on these species (AM-DFA-AG-1 through 7). Compensation CMAs would offset habitat loss for these species.

Bat Covered Species

Bat Covered Species include California leaf-nosed bat, pallid bat, and Townsend's big-eared bat. As shown in Table IV.7-261, impacts to suitable habitat for bat Covered Species would occur throughout the Plan Area; however, impacts to roost sites and areas around roost sites would be avoided and minimized through the CMAs specific to bat species (AM-DFA-BAT-1). Additionally, the Plan-wide avoidance and minimization CMAs (AM-PW-1 through 17) would further avoid and minimize impacts to bat Covered Species. Compensation CMAs would offset habitat loss for these species.

Plant Covered Species

Plant Covered Species include alkali mariposa-lily, Bakersfield cactus, Barstow woolly sunflower, Desert cymopterus, Little San Bernardino Mountains linanthus, Mojave monkeyflower, Mojave tarplant, Owens Valley checkerbloom, Parish's daisy, and Triple-ribbed milk-vetch. As shown in Table IV.7-261, Alternative 4 would result in impact to suitable habitat for these species; however, the CMAs require surveys for plant Covered Species for all Covered Activities, and the CMAs requiring avoidance of and setbacks from occupied habitat (AM-DFA-PLANT-1 through AM-DFA-PLANT-3) would avoid the direct loss of habitat occupied by these species. Compensation CMAs would offset habitat loss for the plant Covered Species.

Approximately 2,000 acres of USFWS-designated critical habitat for Parish's daisy occurs in the Plan Area (excluding military, Open OHV Areas, and tribal lands). The critical habitat unit is the Northeast Slope. Alternative 4 would not result in any impacts to critical habitat for Parish's Daisy.

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[3] Some of the Covered Species discussed here as associated with agricultural lands also use non-agricultural lands.

To avoid and minimize the potential loss of Covered Species from Covered Activities, a range of species-specific CMAs have been developed and are highlighted below:

- CMAs require habitat assessments for all Covered Activities and pre-construction surveys for Tehachapi slender salamander, Mojave fringe-toed lizard, desert tortoise, flat-tailed horned lizard, riparian and wetland bird Covered Species, burrowing owl, greater sandhill crane, Swainson's hawk, Bendire's thrasher, golden eagle, desert kit fox, Mohave ground squirrel, bat Covered Species, and plant Covered Species (see Section II.3.1.2.5.4 and Section II.3.1.2.5.5).
- Setbacks from individual species would be required from active nests of Bendire's thrasher, California condor, elf owl, Gila woodpecker, and golden eagle.
- Covered Activities and other development in areas that potentially affect the amount of sand entering or transported within Aeolian transport corridors will be designed and operated to minimize mortality to Covered Species (AM-LL-3).
- In addition, a bird and bat use and mortality monitoring program will be implemented during operations using current protocols and best procedures available at time of monitoring. Covered Activities that are likely to impact bird and bat Covered Species during operation will develop and implement a project-specific Bird and Bat Operational Strategy (BBOS) that meets the approval of the appropriate DRECP Coordination Group (AM- LL-4).
- Covered Activities will include appropriate design features using the most current information from the Flat-tailed Horned Lizard Rangewide Management Strategy (RMS) and RMS Interagency Coordinating Committee (ICC) to reduce mortality.
- If Bendire's thrasher are present, CMAs require biological monitoring to ensure that individuals are not directly affected by operations (i.e., mortality or injury, direct impacts on nest, eggs, or fledglings) (AM-DFA-ICS-15).
- For Covered Activities where ongoing take of eagles is anticipated, and take of eagles will be authorized under DRECP, federal regulations require that any authorized take must be unavoidable after the implementation of advanced conservation practices (ACPs) (AM-DFA-ICS-29). ACPs are "scientifically supportable measures" approved by the USFWS and represent the best available techniques to reduce eagle disturbance and ongoing mortalities to a level where remaining take is unavoidable" (50 CFR 22.3).

Indirect and Terrestrial Operational Impact Analysis

Siting, construction, and operational Covered Activities could result in the potential disturbance, injury, and mortality of listed and sensitive wildlife from noise, predator avoidance behavior, as well as light and glare. The degree to which these factors contribute

to the disturbance of sensitive wildlife corresponds to the distribution of Covered Activities in the Plan Area that would result in noise, predator avoidance behavior, or light and glare. As described in Section IV.7.2.1, the extent of some of these effects may exist at or beyond the source of these effects, the project footprint, or the project area depending on the type of effect and other environmental considerations. As such, the adverse effects caused by these factors would correspond to the overlap between the location of sensitive wildlife, represented by the Covered Species models, and the likely distribution of Covered Activities across subareas.

Under Alternative 4, approximately 8% of the total Plan Area, would be DFAs that allow renewable energy development. Based on the planned renewable energy generation and transmission under Alternative 4 (a total of 177,000 acres of impact), the creation of noise, predator avoidance behavior, as well as light and glare would collectively result in the terrestrial operational impacts shown in Table IV.7-261. These impacts would mostly occur in the Imperial Borrego Valley, West Mojave and Eastern Slopes, Cadiz Valley and Chocolate Mountains, and Providence and Bullion Mountains subareas. As a result, these subareas would have the greatest potential to create noise, predator avoidance behavior, and light and glare resulting in disturbance of sensitive wildlife.

Noise

Noise caused by mechanical equipment, vehicle usage, and human activities during siting, construction, and operations can cause physical damage such as hearing loss as well as behavioral changes in habitat use, activity patterns, reproduction, and foraging. Birds during the nesting seasons are expected to be particularly sensitive to noise effects from the siting, construction, and operation of renewable energy facilities. For bird Covered Species the Imperial Borrego Valley and West Mojave and Eastern Slopes are the subareas that would be primarily affected. Smaller mammals, such as the Mohave ground squirrel, and reptiles, such the Mojave fringe-toed lizard and flat-tailed horned lizard, could be adversely affected by intense noise (and related vibration that could collapse burrows), and potentially subject to increased predation if noise affects their ability to detect predators. Impacts on the habitat for these Covered Species mostly occurs in the West Mojave and Eastern Slopes subarea, Cadiz Valley and Chocolate Mountains, and Imperial Borrego Valley subareas.

The disturbance and injury of wildlife from noise-related effects would also be minimized through the implementation of avoidance and minimization CMAs under Alternative 4. The CMA AM-PW-13 would reduce noise generated from Covered Activities using standard practices throughout the entire Plan Area. Additionally, various CMAs that would avoid and setback Covered Activities from noise-sensitive wildlife including seasonal setbacks for nesting birds; setbacks from riparian and wetland habitat benefitting bids, amphibians, and small mammals; and avoidance of Mohave ground squirrel's during operations (AM-DFA-RIPWET-1, AM-DFA-RIPWET-5, and AM-DFA-ICS-36). Therefore, potential disturbance of

wildlife from noise during siting, construction, and operations would be minimized by these measures.

Predator Avoidance Behavior

As described in Section IV.7.2.1, predator avoidance behavior can occur in some wildlife in response to human activities during operation and maintenance. Predator avoidance behavior can lead to increased physiological stress, reduced suitable foraging habitat, and can affect reproduction. Although different Covered Activities in combination with different wildlife species can generate varying levels of predator avoidance behavior, the adverse effects on wildlife would generally be similar across renewable energy technology types. Therefore, the severity and location of effects resulting from predator avoidance behavior would correspond to the amount and distribution of Covered Activities represented by the DFAs, as previously described.

Different wildlife species may have varying sensitivities to predator avoidance behavior and may experiences different magnitudes of responses to Covered Activities. Desert bighorn sheep use visual cues to assess and escape predators and may not utilize foraging habitat or water sources in proximity to Covered Activities. Other species that may experience behavioral changes that reduce foraging opportunities or lead to avoidance of suitable foraging habitat include burro deer, desert kit fox, and nesting bird species. These wildlife species are spread throughout the Plan Area with most occurring in the Cadiz Valley and Chocolate Mountains subarea. To a lesser extent, predator avoidance behavior would also be prevalent in the Imperial Borrego Valley and West Mojave and Eastern Slopes subareas. As a result these subareas would experience a relatively similar amount of potential predator avoidance behavior.

Under Alternative 4, avoidance and minimization CMAs for siting Covered Activities away from sensitive wildlife habitat would be implemented for riparian and wetland habitat, wildlife species that inhabit agricultural lands, and for particular species such as the Mohave ground squirrel (AM-DFA-RIPWET-1, AM-DFA-RIPWET-5, AM-DFA-AG-2, and AM-DFA-ICS-36). Additional CMAs would inform workers of actions that could potentially induce predator avoidance behavior and restrict activities that could disturb wildlife and their access to water and foraging habitat (AM-PW-5, AM-PW-13, AM-RES-RL-DUNE-2, and AM-RES-RL-ICS-14). The potential disturbance of wildlife from predator avoidance behavior caused by siting, construction, and operational Covered Activities would be minimized by these measures.

Light and Glare

Light and glare are created by Covered Activity development which involves both light for security and to avoid aviation collisions and glare from reflective surfaces. Exposure of wildlife to light and glare can alter wildlife behavior including foraging, migration, and breeding. Solar projects would produce increased levels of glare due to the large amount of

reflective panel or heliostat surfaces and would have greater effects on wildlife than other renewable energy technologies. Potential adverse effects associated with light and glare from solar projects, including solar flux and bird collisions from the lake effect are analyzed in BR-9. As described above, based on the planned renewable energy generation and transmission under Alternative 4, terrestrial operational impacts would mostly occur in the Cadiz Valley and Chocolate Mountains subarea and to a lesser extent in the Imperial Borrego Valley and West Mojave and Eastern Slopes subareas. Similarly, impacts from solar projects throughout the Plan Area would primarily occur in the Cadiz Valley and Chocolate Mountains subarea.

Lighting can act through various biological mechanisms and can result in greatly different adverse effects to individual species. Diurnal predators, such as bats and insectivorous birds may exploit night lighting that increases prey detectability, while nocturnal prey species may reduce their foraging activity in lighted areas. Impacts to habitat for bats from Covered Activities would mainly be located in the West Mojave and Eastern Slopes and Cadiz Valley and Chocolate Mountains subareas. Migratory birds that fly during the night may be affected by aviation safety lighting on high structures such as met towers and turbines. For bird Covered Species the Imperial Borrego Valley and West Mojave and Eastern Slopes subareas are the subareas primarily affected, containing most of the total Plan-wide impacts to bird Covered Species habitat. Therefore, considering the distribution of potential renewable energy development and impacts on modeled habitat for species sensitive from light and glare the largest magnitude of wildlife disturbance is expected to occur in the Cadiz Valley and Chocolate Mountains and West Mojave and Eastern Slopes subareas.

Alternative 4 would implement avoidance and minimization CMAs specifically intended to reduce effects of lighting and glare including AM-PW-14, which would implement standard practices for shielding and reducing the use of lights, as well as AM-DFA-RIPWET-4, which specifically restricts lighting within one mile of riparian or wetland vegetation. Furthermore, the appropriate siting and design of Covered Activities away from sensitive wildlife habitat would reduce disturbance from lighting and glare. Under Alternative 4, avoidance and minimization CMAs for siting Covered Activities away from wildlife that would be sensitive to the adverse effects of lighting and glare would be implemented for riparian and wetland habitat, wildlife species that inhabit agricultural lands, and for smaller mammals (AM-DFA-RIPWET-1, AM-DFA-RIPWET-5, and AM-DFA-AG-2). These measures would minimize potential disturbance of wildlife from lighting and glare.

Non-Covered Species Impact Analysis

Potential impacts to Non-Covered Species on BLM Land were analyzed as described in Section IV.7.3.2.1. Table IV.7-264 provides an estimation of the impacts to natural communities associated with Non-Covered Species. While estimation of impacts to natural communities likely overestimates the potential impacts to Non-Covered Species habitats, it provides a general range of level of impact.

Impacts to the dune community, riparian communities, arid west freshwater emergent marsh, and Californian warm temperate marsh/seep would be avoided through implementation of CMAs, so impacts to potential habitat for each of these species is likely greater than would actually occur. For some species, impacts would be minimized through avoidance of the specific natural communities required for those species, e.g., dune-, spring-, or cave-restricted invertebrates, or riparian-obligate bird or amphibian species. The total potential impact to natural communities and habitat across all technology types before application of CMAs is less than 1%, with the exception of grasslands at approximately 3.4% and agricultural/rural land cover at approximately 6% (see Table IV.7-264).

Table IV.7-264
Plan-Wide Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 4

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
California forest and woodland/ Desert conifer woodlands	Coast horned lizard, grey vireo, loggerhead shrike, yellow warbler, American badger, bighorn sheep, fringed myotis, hoary bat, long-eared myotis, pocketed free-tailed bat, spotted bat, Tehachapi pocket mouse, western mastiff bat, western small-footed myotis, Amargosa beardtongue, Charlotte's phacelia, creamy blazing star, Cushenbury buckwheat, Cushenbury milk-vetch, Cushenbury oxytheca, Kern buckwheat, Piute Mountains jewel-flower, purple-nerve cymopterus, San Bernardino Mountains dudleya, short-joint beavertail cactus, Spanish needle onion, Tracy's eriastrum, Cushenbury buckwheat	437,000	1,100	200	0	100	1,400	0.3%
Desert Scrub/ Chaparral Communities	Arroyo toad, banded gila monster, Coast horned lizard, Colorado Desert fringe-toed lizard, Couch's spadefoot, rosy boa, bald eagle, bank swallow, Crissal thrasher, Ferruginous hawk, gilded flicker, grey vireo, Le Conte's thrasher, loggerhead shrike, long-eared owl,	13,329,000	65,500	5,000	6,000	18,000	94,500	0.7%

Table IV.7-264
Plan-Wide Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 4

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	Lucy's warbler, northern harrier, yellow warbler, American badger, Arizona myotis, big free-tailed bat, bighorn sheep, cave myotis, fringed myotis, hoary bat, long-eared myotis, Palm Springs pocket mouse, pocketed free-tailed bat, spotted bat, Tehachapi pocket mouse, western mastiff bat, western small-footed myotis, western yellow bat, yellow-eared pocket mouse, Yuma myotis, Algodones Dunes sunflower, Ash Meadows gum plant, Amargosa beardtongue, bare- stem larkspur, Charlotte's phacelia, Cima milk-vetch, Coachella Valley milk-vetch, creamy blazing star, Cushenbury buckwheat, Cushenbury milk-vetch, Cushenbury oxytheca, desert pincushion, Emory's crucifixion-thorn, flat-seeded spurge, forked buckwheat, Harwood's eriastrum, Harwood's milkvetch, Inyo County star-tulip, Kelso Creek monkeyflower, Kern buckwheat, Las Animas colubrina, Lane Mountain Milk-Vetch,							

Table IV.7-264
Plan-Wide Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 4

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	Mojave Desert plum, Mojave milkweed, Munz's Cholla, nine-awned pappus grass, Orcutt's woody aster, Orocopia sage, Parish's club cholla, Pierson's milk-vetch, pink fairy-duster, Piute Mountains jewel-flower, purple-nerve cymopterus, Red Rock poppy, Red Rock tarplant, Robinson's monardella, Rusby's desert-mallow, sand food, Sodaville milk-vetch, short-joint beavertail cactus, Spanish needle onion, Thorne's buckwheat, Tracy's eriastrum, Utah beardtongue, white bear poppy, White-margined beardstongue, Wiggin's croton, Flat-seeded spurge, Parish's phacelia, Parish's alkali grass							
Dunes[3]/ Desert Outcrop and Badlands	Banded gila monster, barefoot gecko, Coast horned lizard, Colorado Desert fringe-toed lizard, Couch's spadefoot, rosy boa, bald eagle, bank swallow, Le Conte's thrasher, loggerhead shrike, long-eared owl, northern harrier, Amargosa vole, big free-tailed bat,	1,895,000	8,000	600	400	3,000	12,000	0.6%

Table IV.7-264
Plan-Wide Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 4

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	bighorn sheep, cave myotis, bat, spotted bat, western mastiff bat, Yuma myotis, Algodones Dunes sunflower, Ash Meadows gum plant, Amargosa beardtongue, Amargosa niterwort, Charlotte's phacelia, Cima milk-vetch, Coachella Valley milk-vetch, creamy blazing star, desert pincushion, Emory's crucifixion-thorn, flat-seeded spurge, forked buckwheat, Harwood's eriastrum, Harwood's milkvetch, Inyo County star-tulip, Las Animas colubrina, Mojave Desert plum, Mojave milkweed, nine-awned pappus grass, Orcutt's woody aster, Orocopia sage, Palmer's jackass clover, Parish's club cholla, Pierson's milk-vetch, pink fairy-duster, purple-nerve cymopterus, Red Rock poppy, Red Rock tarplant, Robinson's monardella, Rusby's desert-mallow, sand food, Spanish needle onion, Thorne's buckwheat, Utah beardtongue, white bear poppy, Wiggin's croton, Palmer's jackass clover,							

Table IV.7-264
Plan-Wide Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 4

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	white-margined beardtongue, flat-seeded spurge							
Grassland	Coast horned lizard, American peregrine falcon, bank swallow, Ferruginous hawk, long-eared owl, northern harrier, white-tailed kite, Amargosa vole, American badger, spotted bat, Cushenbury milk-vetch, Cushenbury oxytheca, short-joint beavertail cactus	238,000	7,300	300	0	400	8,000	3.4%
Riparian/ Wetlands	Arroyo toad, California red-legged frog, Coast horned lizard, Couch's spadefoot, Western pond turtle, American peregrine falcon, Arizona Bell's vireo, bald eagle, bank swallow, Crissal thrasher, gilded flicker, elf owl, Inyo California towhee, loggerhead shrike, long-eared owl, Lucy's warbler, northern harrier, redhead, vermillion flycatcher, white-tailed kite, yellow-breasted chat, yellow-headed blackbird, yellow warbler, Amargosa vole, Mojave River vole, Arizona myotis, cave myotis, fringed myotis, hoary bat, long-eared myotis pocketed	1,652,000	5,000	200	0	400	5,600	0.3%

Table IV.7-264
Plan-Wide Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 4

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	free-tailed bat, spotted bat, western mastiff bat, western yellow bat, Yuma myotis, Ash Meadows gum plant, Inyo County star-tulip, Parish's alkali grass, Parish's phacelia, Amargosa pupfish, Amargosa speckled dace, Amargosa spring snails							
Agriculture/ Rural Land Cover	American peregrine falcon, Bank swallow, loggerhead shrike, long-eared owl, northern harrier, redhead, yellow-headed blackbird, yellow warbler, Arizona myotis, hoary bat, Tehachapi pocket mouse, western mastiff bat, western yellow bat	825,000	34,000	500	8,500	6,400	49,400	6%

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

[2] Solar impacts include ground-mounted distributed generation.

[3] Impacts to the dune community, riparian communities, arid west freshwater emergent marsh, and Californian warm temperate marsh/seep would be avoided through implementation of CMAs. Only impacts determined to be unavoidable would occur in these natural communities.

[4] This amount assumes the loss of conservation value for all land fragmented by the well fields.

Notes: The natural community classification system is described in Chapter III.7 and follows CDFG 2012. Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

USFWS-designated critical habitat occurs within the Plan Area (excluding military, Open OHV Areas, and tribal lands) for the following Non-Covered Species:

- Approximately 1,000 acres for Amargosa nitrophila
- Approximately 4,000 acres for the Amargosa vole
- Approximately 4,000 acres for the Arroyo Toad
- Approximately 300 acres for the Ash Meadows gumplant
- Approximately 600 acres for the Cushenbury buckwheat
- Approximately 1,000 acres for the Cushenbury milk-vetch
- Approximately 100 acres for the Cushenbury oxytheca
- Approximately 14,000 acres for the Lane Mountain milk-vetch
- Approximately 3,400 acres for the Pierson's milk-vetch
- Approximately 47,000 acres for the Peninsular bighorn sheep

Under the Alternative 4, impacts to approximately 20 acres of Lane Mountain milk-vetch critical habitat would have the potential to occur from transmission. This calculation of impacts from transmission is derived from the transmission corridors overlapped with designated critical habitat, thus resulting is an overestimation of actual ground disturbance.

The results of impacts on Non-Covered Species from the creation of noise, predator avoidance behavior, and light and glare would be similar to those described for the Covered Species.

As additional analysis, Table IV.7-50, in Section IV.7.3.2.1 provides a cross-reference of natural communities shared between primary Covered and Non-Covered Species. There are a number of species-specific CMA's for Covered Species and natural communities that would be expected to also minimize and avoid impacts to the Non-Covered Species that may co-occur, e.g., the non-Covered yellow-breasted chat often occurs within the same riparian habitat as the covered southwestern willow flycatcher, therefore, conservation measures implemented for southwestern willow flycatcher would often benefit the yellow-breasted chat. Although the modeled habitat for the Covered Species does not always directly overlap the range of Non-Covered Species requiring similar habitat, this method provides a general additional guide for determining impacts and accounting for conservation measures.

The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and

therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Impact BR-5: Siting, construction, decommissioning, and operational activities could result in loss of nesting birds (violation of the federal Migratory Bird Treaty Act and California Fish and Game Code Sections 3503, 3503.5, 3511, and 3513).

Siting, construction, decommissioning, and operations of renewable energy and transmission projects would result in the removal of vegetation and other nesting habitat and cause increased human presence and noise that has the potential to cause the loss of nesting birds, which would be a violation of the federal Migratory Bird Treaty Act and the California Fish and Game Code. The potential loss of nesting birds resulting from these activities would be adverse without application of CMAs. Avoidance and minimization CMAs (AM-PW-4, 13, 14; AM-DFA-RIPWET-1, 3, 5; AM-DFA-AG-1 through 6; AM-DFA-ICS CMAs for bird species) include the season restrictions, survey requirements, and setbacks necessary to avoid and minimize the loss of nesting birds.

Impact BR-6: Siting, construction, decommissioning, and operational activities would adversely affect habitat linkages and wildlife movement corridors, the movement of fish, and native wildlife nursery sites.

The following provides an analysis of the impacts of the development of Covered Activities on habitat linkages and wildlife movement in the Plan Area. Species-specific habitat linkages and wildlife movement areas are a component of analysis conducted under Impact BR-4 above. Suitable habitat for each species includes areas of habitat linkages and wildlife movement. Analysis under BR-4 specifically incorporates habitat linkage information for desert tortoise, Mohave ground squirrel, and desert bighorn sheep. In addition to the species-specific analysis of impacts to suitable habitat supporting habitat linkages and wildlife movement for species, landscape level information on habitat linkages (i.e., Desert Linkage Network) and migratory bird movement are analyzed below.

Desert Linkage Network

The desert linkage network is a comprehensive and detailed habitat connectivity analysis for the California deserts identified "swaths" of habitat of uniform physical conditions that will interact with uncertain climate changes to maintain habitat for species and species' movement (Penrod et al. 2012, as cited in Appendix Q). Figures III.7-26 through III.7-36 in Chapter III.7 of Volume III shows the desert linkage network for the Plan Area and in each ecoregion subarea.

Table IV.7-265 shows the impact analysis for the desert linkage network for Alternative 4. Overall, over 29,000 acres of desert linkage network could be adversely impacted in DFAs and transmission corridors in seven different subareas.

In the Cadiz Valley and Chocolate Mountains subarea, DFAs are located in the portion of the desert linkage network that connects the Colorado River to the northern part of the McCoy Mountains. There are also DFAs in the linkage network that extends along the McCoy Mountains and connects south to the Palo Verde Mesa. There are also DFAs in the Chuckwalla Valley portion of a linkage network that extends west and south. Numerous generally north-south habitat linkages cross the I-10 corridor area between Desert Center and Blythe in this subarea; DFAs under Alternative 4 overlap these habitat linkages and would have the potential to result in adverse impacts to general terrestrial wildlife movement if the development of Covered Activities in these DFAs are not sited and designed to maintain wildlife movement. The DRECP Plan-Wide Reserve Design Envelope for Alternative 4 was developed, in part, to conserve and avoid impacts to habitat linkages and wildlife movement, including the desert linkage network; however, the inclusion of DRECP Variance Lands in this alternative and the uncertainty of future management of these lands undermines the strength of the DRECP Plan-Wide Reserve Design Envelope for Alternative 4. In particular, variance lands in this area lead to uncertainty of securing functional connectivity corridors under Alternative 4.

In the Imperial Borrego Valley, there are DFAs in the northern portion of the desert linkage network that extends along East Mesa from east of the Imperial Valley north toward the Coachella Canal. DFAs are not located in the desert linkage network corridors elsewhere in the Imperial Borrego Valley subarea. General terrestrial wildlife movement may be affected locally by the development of Covered Activities in these DFAs; however, the siting of DFAs, the reserve design, and the CMAs related to wildlife movement and Covered Species would offset the impacts on general terrestrial wildlife movement.

In the Mojave and Silurian Valley, there are DFAs in the Mojave Valley in a linkage that connects the area around Barstow to the Calico Mountains and east along and south of the Mojave River. In the Owens River Valley, there are DFAs in the desert linkage network that connects the Haiwee Reservoir to Indian Wells. In the Panamint Death Valley subarea, there is a DFA in the Searles Valley in a linkage that connects the Searles and Argus Ranges. DFAs are not located in the desert linkage network corridors elsewhere in these ecoregion subareas. General terrestrial wildlife movement may be affected locally by the development of Covered Activities in these DFAs; however, the siting of DFAs, the reserve design, and the CMAs related to wildlife movement and Covered Species would offset the impacts on general terrestrial wildlife movement. Variance lands in these areas leads to uncertainty of securing functional connectivity corridors under Alternative 4.

In the Pinto Lucerne Valley and Eastern Slopes subarea, there are DFAs in a portion of the desert linkage network that connects the Grapevine Canyon Recreation Lands to the Granite Mountains in Lucerne Valley; however, no DFAs are located in the habitat linkage between the Ord Mountains and the Granite Mountains across the Highway 18 east of Apple Valley. There are also DFAs in the linkage that connects Black Mountain to the Mojave River. DFAs under this Alternative are sited to avoid and minimize impacts to wildlife movement in this subarea by maintaining movement corridors between the San Bernardino Mountains and the Mojave Desert, including in the Ord Mountains to Granite Mountains linkage area and in the Bighorn Mountain area that connects to Johnson Valley and the Morongo Basin. General terrestrial wildlife movement may be affected locally by the development of Covered Activities in these DFAs; however, the siting of DFAs, the reserve design, and the CMAs related to wildlife movement and Covered Species would offset the impacts on general terrestrial wildlife movement. However, the inclusion of DRECP Variance Lands in this alternative and the uncertainty of future management of these lands undermines the strength of the DRECP Plan-Wide Reserve Design Envelope for Alternative 4. Therefore, variance lands in this area lead to uncertainty of securing functional connectivity corridors under Alternative 4.

In the West Mojave and Eastern Slopes subarea, there are DFAs in the linkage that connects the area around Baldy Mesa along the southern edge of the Plan Area to Helendale; however, in this area, DFAs under this alternative are sited to avoid the habitat linkage along the Mojave River and the habitat linkage east of Saddleback Buttes along the Los Angeles and San Bernardino county line. DFAs occur in the Brisbane Valley and in the linkages around Barstow. In the Fremont Valley area around California City, DFAs are located in linkages between Edwards Air Force Base the Tehachapi Mountains that could adversely affect wildlife movement; however, an east-west corridor was maintained without DFAs north of California City across Fremont Valley. General terrestrial wildlife movement may be affected locally by the development of Covered Activities in these DFAs; however, the siting of DFAs, the reserve design, and the CMAs related to wildlife movement and Covered Species would offset the impacts on general terrestrial wildlife movement. The inclusion of DRECP Variance Lands in this alternative and the uncertainty of future management of these lands undermines the strength of the DRECP Plan-Wide Reserve Design Envelope for Alternative 4. Variance lands in this area lead to uncertainty of securing functional connectivity corridors under Alternative 4.

The DRECP Plan-Wide Reserve Design Envelope for Alternative 4 was developed, in part, to conserve and avoid impacts to habitat linkages and wildlife movement, including the desert linkage network; however, the inclusion of DRECP Variance Lands in this alternative and the uncertainty of future management of these lands undermines the strength of the DRECP Plan-Wide Reserve Design Envelope for Alternative 4. The conservation analysis for the desert linkage network is provided under the Impacts of the Reserve Design below. To

avoid and minimize impacts to the desert linkage network beyond what is estimated in Table IV.7-265, Covered Activities will be sited and designed to maintain the function of wildlife connectivity in the following linkage and connectivity areas: (1) across Interstate 10 centered near Wiley's Well Road to connect the Mule and McCoy mountains, (2) across Interstate 10 to connect the Chuckwalla and Palen mountains, (3) across Interstate 10 to connect the Chuckwalla Mountains to the Chuckwalla Valley east of Desert Center, and (4) the confluence of Milpitas Wash and Colorado River floodplain. In addition, the Riparian and Wetland Natural Communities and Covered Species CMAs will contribute to maintaining and promoting habitat connectivity and wildlife movement.

Table IV.7-265
Plan-Wide Impact Analysis for the Desert Linkage Network – Alternative 4

Desert Linkage Network by Ecoregion Subarea	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Cadiz Valley and Chocolate Mountains	890,000	11,000	800	-	10,000	22,000
Imperial Borrego Valley	156,000	100	-	80	30	200
Kingston and Funeral Mountains	174,000	-	-	-	-	-
Mojave and Silurian Valley	507,000	900	-	-	300	1,000
Owens River Valley	19,000	200	-	300	200	700
Panamint Death Valley	206,000	500	-	-	80	600
Pinto Lucerne Valley and Eastern Slopes	291,000	2,000	400	-	900	3,000
Piute Valley and Sacramento Mountains	152,000	-	-	-	-	-
Providence and Bullion Mountains	426,000	-	-	-	-	-
West Mojave and Eastern Slopes	860,000	4,000	400	-	300	5,000
Total	**3,682,000**	**19,000**	**2,000**	**300**	**12,000**	**33,000**

1 Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
2 Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the

nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Migratory Birds

Migration patterns across the Plan Area are discussed in the typical impacts section (Section IV.7.2.1.3) and quantification of operational impacts to avian and bat species are discussed in BR-9. The following analysis focuses on the anticipated distribution of different technology types in relation to known migratory corridors and migratory resources in each subarea.

In Alternative 4, wind generation is a moderate proportion of the overall generation mix, it is would be predominantly located in West Mojave and Eastern Slopes, Pinto Lucerne Valley and Eastern Slopes, and Cadiz Valley and Chocolate Mountain ecoregion subareas.

Wind development would mostly occur on the eastern slopes of the Tehachapi Mountains and in the mountainous areas around Lucerne Valley. Key bird migration areas affected would include routes between the Tehachapi and San Bernardino mountain passes, and the dry lakes and wetland refuges on and to the north of Edwards AFB, including the North Mojave dry lakes of China Lake, Koehn Lake, Harper Lake and Searles Lake. Further, direct loss of habitat in Antelope Valley would lead to loss of habitat for wintering birds. Wind development would occur in the Cadiz and Chocolate Mountains subarea to the north west of Blythe in the McCoy wash area, and north of the I-10. These areas are adjacent to the Colorado River migratory corridor, and may affect migratory bird movement to and from the Coachella Valley. Very small quantities of wind would be located in Imperial Borrego Valley.

Solar development would be expected throughout the West Mojave and Eastern slopes, Pinto Lucerne Valley and Eastern Slopes, Cadiz Valley and Chocolate Mountain and Imperial Borrego Valley ecoregion subareas. Alternative 4 would result in new solar PV and solar thermal facilities along the I-10 corridor to the west side of the Colorado River, and in agricultural lands west of Blythe, and in undisturbed lands in McCoy Valley. Anticipated development would result in a 6-fold increase in solar facilities when compared to baseline. This would increase hazards on the migratory linkages for birds between the Colorado River, and the Coachella Valley, and would adversely affect both Covered Species and other migratory birds. Similarly, development in the West Mojave and Eastern Slopes subarea would result in a 4-fold increase in solar facilities; and Pinto Lucerne Valley and Eastern Slopes subarea would be developed where previously it has not been the focus of development. Impacts are likely to occur in DFAs between the Tehachapi and San Bernardino Mountain passes, and dry lakes on Edwards AFB, as well as, the dry lakes of China Lake, Koehn Lake, Harper Lake and Searles Lake.

Development around the Salton Sea and in the Imperial Valley would be on the southern, western and eastern shores. As discussed in BR-4, impacts from solar development are likely to result in a 3.7-fold increase in solar facilities when compared to baseline impacts. Development would lead to direct loss of foraging habitat for wintering and resident birds in the agricultural lands south of the Salton Sea, and would create facilities across the landscape that mimic open water. Such facilities would adversely affect the behavior migratory birds, and would result increased mortality. Areas most important to migratory waterbirds that are within both geothermal and solar DFAs include the agricultural lands west of Calipatria to the Shoreline of the Salton Sea. Transmission throughout this area is already extensively developed to serve existing geothermal facilities and would likely attract further development. These lands provide foraging for Cattle Egret, White-faced Ibis, Sandhill Crane, Mountain Plover, Whimbrel, Long-billed Curlew throughout winter (Shuford et al 2000). Further, the proximity of these DFAs to the Salton Sea would affect migrating and resident water birds including ducks, geese, pelicans, cormorants, and wading birds that would otherwise be minimally affected development. In particular grebes are known to be attracted to both the reflective surfaces of solar PV facilities and the evaporation ponds used by some geothermal and solar facilities.

Application of CMAs would require projects to be sited and designed to avoid impacts to occupied and suitable habitat for Covered Species, to the maximum extent feasible. Further, siting and construction CMAs require setbacks from riparian and wetland habitats which would minimize direct loss. Compensation CMAs would offset habitat loss for Covered Species. A bird and bat use and mortality monitoring program would be implemented during operations. Any proposed projects that are likely to impact bird and bat Covered Species during operation would develop and implement a project-specific Bird and Bat Covered Species Operational Actions that meets the approval of the appropriate DRECP Coordination Group. The goal of the project-specific Bird and Bat Covered Species Operational Actions would be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar and geothermal projects. The compensation requirements in the Bird and Bat Covered Species Operational Actions would be based on ongoing/annual fees and the biological basis for the fee would be determined by the mortality effects as annually measured and monitored according to the Bird and Bat Covered Species Operational Actions. In combination, the application of siting, monitoring, operational and compensation CMAs would minimize impacts to migratory birds. Application of CMAs would reduce the overall impacts to migratory bird populations.

Impact BR-7: Siting, construction, decommissioning, and operational activities would result in habitat fragmentation and isolation of populations of listed and sensitive plants and wildlife.

The siting, construction, decommissioning, and operation of renewable energy and transmission projects can have the potential to fragment intact and interconnected landscapes resulting in isolated patches of habitat, isolated species populations, reduced gene flow, and remaining habitat that is more exposed to the edge effects of adjacent developments.

The DRECP integrated planning process, as described in Volume II, avoids and minimizes this impact through the siting of DFAs and through the reserve design. Renewable energy development would be restricted to DFAs under the DRECP; therefore, Alternative 4 would allow the siting of renewable energy development only within approximately 8% of the available lands in Plan Area (1,608,000 acres of DFAs). Of which, siting and construction of renewable energy development would affect less than 1% of the available lands in the Plan Area (approximately 177,000 acres).

In conjunction with DFA siting, the DRECP integrated planning process identified Reserve Design Lands within which renewable energy development would be prohibited and conservation would occur. As described below under Impacts of the Reserve Design, the DRECP Plan-Wide Reserve Design Envelope for Alternative 4 covers 14,478,000 acres of the Plan Area (76% of the available lands in the Plan Area); therefore, 76% of the available lands in the Plan Area would not have the potential to be affected by fragmentation or population isolation impacts from Covered Activities.

In order to minimize habitat fragmentation and population isolation, DFAs were sited in less intact and more degraded areas. Based on the terrestrial intactness analysis developed for the DRECP area, approximately 87% of the DFAs in Alternative 4 are characterized by low or moderately low intactness. Therefore, a majority of the DFAs are in locations with existing habitat fragmentation and population isolation such that development of Covered Activities in these areas would not appreciably contribute to additional effects. However, under Alternative 4, DRECP Variance Lands are included that were not sited to avoid intact landscapes and were not sited to ensure development is constrained to more degraded lands. The inclusion of the DRECP Variance Lands scattered across the landscape under Alternative 4 undermines the intactness and puts larger intact landscapes at risk of dispersed future development.

Other measures of fragmentation and population isolation effects include the amount of impacts on environmental gradients. Environmental gradients are spatial shifts in physical and ecological parameters across a landscape. Environmental gradients are influenced by factors such as temperature, precipitation, wind, and solar exposure that vary with physical

factors such as elevation, latitude, slope, and aspect. The impact analysis addresses four types of environmental gradients in the Plan Area: elevation, landforms, slope, and aspect.

Elevation: Under Alternative 4, 99% of the impacts from Covered Activities would occur in DFAs below 4,000 feet, including 61% of the impacts occurring below 1,000 feet and 32% between 2,000 and 4,000 feet. As the majority of impacts occur in DFAs below 4,000 feet, impacts will be greater to natural communities that occur below this elevation such as desert scrub natural communities as compared to natural communities that occur at higher elevations. Approximately 94% of geothermal impacts are at elevations below 1,000 feet, including 63% below sea level. Solar impacts also tend to be concentrated in the lower elevations, with 87% of impacts below 3,000 feet. Wind impacts tend to be at higher elevations, with 59% of impacts at elevations above 2,000 feet. Approximately 16% of transmission impacts would be between 2,000 and 4,000 feet elevation. Habitat fragmentation, population isolation and gene flow impacts would be concentrated at lower elevations, which has the potential to reduce the potential for successful species range shifts, contractions, and expansions for lower elevation Covered Species and natural communities in response to climate change. As Alternative 4 would impact less than 1% of all available land within the Plan Area, any impacts to successful species range shifts, contractions, and expansions will be relatively minor.

Landforms: Landforms in the Plan Area include canyons/deeply incised streams, mountain tops/high ridges, open slopes, and plains. Under Alternative 4, the vast majority (97%) of impacts within DFAs would occur to plains, with these impacts spread across the different impact types, including 72% from solar, 4% from wind, 10% from geothermal, and 14% from transmission. Habitat fragmentation, population isolation and gene flow impacts would be concentrated in plains, which has the potential to reduce the potential for successful species range shifts, contractions, and expansions for Covered Species and natural communities associated with plains in response to climate change. As Alternative 4 would impact less than 1% of all available land within the Plan Area, any impacts to successful species range shifts, contractions, and expansions will be relatively minor.

Slope: Under Alternative 4, total impacts within DFAs would be progressively less with increasing slope. The large majority (93%) of impacts would occur on slopes less than 5%, and 99% of impacts would occur on slopes up to 20%. On slopes less than 20%, impacts would be spread across the different impacts types, including 71% from solar, 4% from wind, 10% from geothermal, and 15% from transmission. Habitat fragmentation, population isolation, and gene flow impacts would be concentrated on slopes less than 20%, which has the potential to reduce the potential for successful species range shifts, contractions, and expansions for Covered Species and natural communities that inhabit lower slopes in response to climate change. As Alternative 4 will impact less than 1% of all

available land within the Plan Area, any impacts to successful species range shifts, contractions, and expansions will be relatively minor.

Aspect: Under Alternative 4, impacts within DFAs would generally be well distributed among the different aspects Impacts from solar, geothermal, wind, and transmission would have similar distributions across the different aspects compared to overall impacts. By distributing the impacts across all aspects, there is a less potential to interrupt species movement and gene flow for species that occur within any one aspect.

Siting, construction, decommissioning, and operation of the renewable energy and transmission projects has the potential to result in adverse fragmentation and population isolation effects, but these effects are avoided and minimized through the DFAs and reserve design envelope, as well as through the implementation of avoidance and minimization CMAs (AM-LL-1 through AM-LL-4).

Impact BR-8: Construction of generation facilities or transmission lines would result in increased predation of listed and sensitive wildlife species.

Any development to the North of Edwards is likely to affect Mohave ground squirrel. However, Covered Activities in undisturbed desert habitat are likely to disproportionately supplement predators, increase predator density and consequently increase predation rates on Covered Species. Alternative 4 would result 126,000 acres of permanent conversion of natural desert communities with 51,000 acres of impacts (29% of the total ground disturbance) within areas characterized by disturbed land cover types.

Agricultural landscapes in the west Mojave, Lucerne Valley and Imperial Borrego Valley or surrounding Blythe are already disturbed, with relatively high levels of human activity that supplement predators such as ravens and coyotes, and support covered predator species such as burrowing owls and Swainson's hawk. Therefore, covered operational activities in already disturbed rural and agricultural landscapes are would result in a little increase in predation.

Wind and solar development in the West Mojave and Eastern Slopes and the Pinto Lucerne Valley and Eastern Slopes subareas may supplement predators in undisturbed environments including parts of the Tehachapi Mountains or areas to the north of Edwards AFB. In these areas, susceptible species would include nestlings and eggs of Covered Species such as tricolored blackbird, and golden eagle, as well as reptiles like the Tehachapi slender salamander and the desert tortoise. Any development in suitable habitat North of Edwards is likely to lead to increased predation on Mohave ground squirrel. Solar development is also likely to occur in already disturbed agricultural landscapes around Lancaster or to the southwest of Edwards AFB. Much of the development in the Cadiz and Chocolate Mountains subarea, would be expected in the BLM Solar SEZ area adjacent to the I-10 corridor and in McCoy Valley. Development would increase predation on species like

desert tortoise and Mojave fringed toed lizard. Impacts in Imperial Valley would predominately occur in agricultural and disturbed lands. However, where projects are sited in natural communities, susceptible Covered Species would include flat-tailed horned lizard, and nesting birds.

The inclusion of DRECP Variance Lands under Alternative 4 has the potential for increased risk of scattered transmission lines and scattered development activities in remote and intact landscapes, which could lead to future increased levels of predation.

Application of a Common Raven management plan (AM-PW-6), approved by the appropriate DRECP Coordination Group would reduce project activities that increase predator subsidization. Including, removal of trash and organic waste; minimize introduction of new water sources including pooling of water from dust control; removal of carcasses from bird and bat collisions; and reduction in new nesting and perching sites where feasible.

The level of impact on Non-Covered Species would be similar to that discussed for the Covered Species.

Impact BR-9: Operational activities would result in avian and bat injury and mortality from collisions, thermal flux or electrocution at generation and transmission facilities.

The impacts of operation activities on avian and bat injury and mortality are analyzed below for wind turbines, solar, and transmission.

Wind Turbine

This section summarizes the range of impacts to bird and bat species within the Plan Area that occur as a consequence of wind turbine operation. The range of collision rates calculated in Table IV.7-266 are indicative of the overall annual collision rates for all bird and bat species, not just Covered Species. The range of collision rates is estimated for the final full build-out of wind over the life of the Plan, and is based on the range of collision rates in existing published and gray literature. While it is possible to provide a range of possible collision rates, it is not feasible to estimate the collision rate for each Covered Species, but only infer the propensity for a species to be at risk from collision by the overlap between the species habitat models and the likely distribution of wind generation across the subareas.

Overall, Alternative 4 would result in a median of 8,000 collisions per year for birds and 36,000 collisions per year for bats across the Plan Area. The expected distribution of wind generation indicates that 43% of all collisions would occur in West Mojave and Eastern Slopes subarea, 18% in Pinto Lucerne Valley and Eastern Slopes, and 38% in the Cadiz and

Chocolate Mountains subarea, with a small percentage occurring in the Imperial Borrego Valley subarea. Collisions would predominately affect species in the northwest of the Plan area, Susceptible species include Bendire's thrasher, burrowing owl, golden eagle, least Bell's vireo, and Swainson's hawk, tricolored blackbird, southwest willow flycatcher, and mountain plover. Collision rates would be lower in the Cadiz and Chocolate Mountains subarea. Susceptible species in this subarea include burrowing owl and mountain plover.

Pre-construction CMAs require habitat assessments and pre-construction surveys for covered riparian and wetland birds, burrowing owl, greater sandhill crane, Swainson's hawk, Bendire's thrasher, golden eagle, and plant Covered Species.

Application of siting CMAs would avoid or minimize the risk to species localities. Setbacks from active nests would be required for Bendire's thrasher, California condor, Gila woodpecker, and golden eagle. In addition, projects would be sited and designed to avoid impacts to occupied and suitable habitat for Covered Species to the maximum extent feasible. Implementation of bat specific CMAs include 0.5-mile setbacks from all bat maternity roosts and 5% disturbance caps on desert scrub and woodland habitats in the vicinity of occupied pallid bat and Townsend's big-eared bat roosts would reduce impacts to bat Covered Species.

Applicants would develop and implement a project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meets the approval of the appropriate DRECP Coordination Group. The goal of the project-specific BBOS will be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar, geothermal, or transmission project. A bird and bat use and mortality monitoring program will be implemented during operations using current protocols and best procedures available at time of monitoring. Further, the compensation requirements in the Bird and Bat Covered Species Operational Actions would be based on ongoing/annual fees and the biological basis for the fee will be determined by the mortality effects as annually measured and monitored according to the Bird and Bat Covered Species Operational Actions.

Similarly, a Condor Operations Strategy (COS) would be developed on a project-specific basis with the goal of avoiding mortality from operations of wind, solar and geothermal projects. No take for condors will be will be permitted in the form of kill from project operations. Any actions taken to encourage condors to leave an area that might result in harassment, injury, or mortality to the bird will be conducted by a Designated Biologist.

Table IV.7-266
Plan-Wide Estimated Range of Collision per Year for Birds and Bats by Subarea – Alternative 4

Ecoregion Subarea	# Turbines	Birds (Collisions/Yr)			Bats (Collisions/Yr)		
		Low	*Median*	*High*	*Low*	*Median*	*High*
Cadiz Valley and Chocolate Mountains	586	900	3,000	11,000	1,000	14,000	82,000
Imperial Borrego Valley	13	-	100	200	-	300	2,000
Kingston and Funeral Mountains	0	-	-	-	-	-	-
Mojave and Silurian Valley	0	-	-	-	-	-	-
Owens River Valley	0	-	-	-	-	-	-
Panamint Death Valley	0	-	-	-	-	-	-
Pinto Lucerne Valley and Eastern Slopes	284	400	1,000	5,000	600	7,000	40,000
Piute Valley and Sacramento Mountains	0	-	-	-	-	-	-
Providence and Bullion Mountains	0	-	-	-	-	-	-
West Mojave and Eastern Slopes	671	1,000	3,000	13,000	1,000	16,000	94,000
Grand Total	**1,554**	**2,000**	**8,000**	**30,000**	**3,000**	**36,000**	**218,000**

[1] Method for estimation of annual bird and bat collision rates described in Section IV.7.1.1.2 and discussed in more detail in Section IV.7.2.1.3

Note: The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table

Solar

Collision with power towers, heliostats and solar arrays, and injury or mortality from exposure to solar flux, are all known impacts of solar generation facilities. While the nature of the impacts remain the same for all alternatives, the distribution of impacts across the plan area varies in relation to the anticipated quantity and location of solar facilities in each alternative. Under Alternative 4 a total of 1,608,000 acres of the Plan Area would designated as DFAs, of which up to 147,000 acres would be directly impacted by solar development.

In Alternative 4, plan-wide solar development would result in a 4.3-fold increase in collision risks relative to baseline (Appendix O). 31% of the anticipated solar facilities would be in the Cadiz Valley and Chocolate Mountains Region, and 25% would be in the

Imperial Borrego Valley subarea. The West Mojave and Eastern Slopes subarea would support approximately 33% of the solar development, with a further 5% occurring in the Pinto and Lucerne Valley subarea. The remaining 5% would be spread across the rest of the Plan area.

Solar development in Imperial Borrego Valley area would convert agricultural lands, which are important winter foraging areas for mountain plover and greater sandhill crane. Alternative 4 has some of the most restricted DFAs in the Imperial Borrego Valley ecoregion subarea, these restrictions would increase the density of development in the remaining DFAs. In particular, the DFAs in the agricultural lands running from the west of Calipatria to the Shoreline of the Salton Sea represent great potential for development because there is already extensive transmission throughout this area to serve existing geothermal facilities. However, this area also provides foraging for Cattle Egret, White-faced Ibis, Sandhill Crane, Mountain Plover, Whimbrel, Long-billed Curlew throughout winter (Shuford et al 2000). Further, the proximity of the Salton Sea would mean that development could disproportionately affect migrating and resident water birds including ducks, geese, pelicans, cormorants, and wading birds that would otherwise be less affected if development was more spread out.

Impacts in Imperial Borrego Valley and the Cadiz Valley would disproportionately affect wetland species like the Yuma clapper rail, California black rail. In particular mortality of Yuma clapper rail is anticipated across the Plan Area because rail species in general, and clapper rails in particular, have long-distance dispersal capabilities, and tend to be attracted to and collide with reflective surfaces, and appear vulnerable to colliding with fences, during longer-distance movements at night. These conclusions are based on numerous documented fatalities of various rail species (including two clapper rails to date) at different solar project sites currently in construction or recently put into operation in Riverside and Imperial counties.

Due to the close proximity of DFAs to the Colorado River, impacts from solar operations in the Cadiz and Chocolate mountains subarea are also likely to affect riparian birds species associated with the lower Colorado River like southwest willow flycatcher, western yellow-billed cuckoo, Gila woodpecker, and least Bell's vireo and would also affect migratory birds as discussed in BR-6.

Impacts in the western Mojave, along the HWY14 corridor, in Antelope Valley and east of Lancaster may disproportionately affect nesting and foraging Swainson's hawk, and overwintering mountain plover. Whereas, impacts in the Lucerne Valley affect foraging habitat for nesting golden eagle populations, and overwintering Bendire's thrasher. Burrowing owl are less regionally specific, and would be affected in subareas with significant quantities of open agriculture lands. They would especially be affected by

development in Imperial Borrego Valley, which contains the largest population of burrowing owls in California, and in the West Mojave and Eastern Slopes subarea, in the open agricultural lands around Lancaster and Palmdale.

To offset potential impacts, the application of CMAs would require projects to be sited and designed to avoid impacts to occupied and suitable habitat for Covered Species, to the maximum extent feasible. Further, siting and construction CMAs require setbacks from riparian and wetland habitats, which would minimize direct loss. Compensation CMAs would offset habitat loss for Covered Species. A bird and bat use and mortality monitoring program would be implemented during operations. Any proposed projects that are likely to impact bird and bat Covered Species during operation would develop and implement project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meet the approval of the appropriate DRECP Coordination Group. The goal of the project-specific Bird and Bat Covered Species Operational Actions would be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar and geothermal projects. The compensation requirements of AM-LL-4 would be based on ongoing/annual fees and the biological basis for the fee would be determined by the mortality effects as annually measured and monitored according to AM-LL-4. In combination, the application of siting, monitoring, operational and compensation CMAs would minimize impacts to migratory birds. Bat mortality from solar facilities may occur because of collision or solar flux injury. No DFAs are known to be specifically sensitive areas for bat foraging, and implementation of bat specific CMAs include 500 feet setbacks from all bat maternity roosts and 5% disturbance caps on desert scrub and woodland habitats in the vicinity of occupied pallid bat and Townsend's big-eared bat roosts would reduce impacts to bat Covered Species.

Transmission

The transmission collision and electrocution impacts would occur from generation tie lines (collector lines), new substations, and major transmission lines (delivery lines) that deliver power to major load centers. The distribution of impacts from collector lines would mostly occur within DFAs and be similar in distribution to the generation facilities. Most of the affected areas would be in Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, Pinto Lucerne Valley and Eastern Slopes and the West Mojave and Eastern Slopes subareas, with 18,000 acres, 6,000 acres, 2,000 acres, 1,000 acres and 6,000 acres of terrestrial impacts anticipated respectively. The remaining 2,000 acres of terrestrial impacts would be spread throughout the remaining subareas.

Both large transmission lines and the network of smaller collector lines would present collision and electrocution hazard to bird Covered Species. In particular, lines running perpendicular to migratory corridors or close to bird refuges would represent a greater

hazard. Such lines would include those anticipated to run parallel to the Tehachapi Mountains, as well as those that would cross the Tehachapi mountain passes. Other anticipated lines in the Chuckwalla Valley would run parallel to I-10 corridor in the existing transmission corridors. In the Imperial Borrego Valley subarea, lines would run along the along the eastern side of Salton Sea in existing transmission corridors that run parallel to the foothills of the Chocolate Mountains; and would also run from east to west between the Imperial Valley and the San Diego area. All these lines would represent additional risk to migrating and overwintering covered avian species, due to their location. Collision risks in these areas increase during storm events when flocks of migrating birds come down to wait out the storms before continuing their migration.

All bird Covered Species may be impacted by additional transmission infrastructure. To ameliorate potential hazards, transmission projects would reduce impacts to Covered Species by implementing Plan-wide, landscape-level, natural community, and Covered Species CMAs where feasible, as discussed under the wind impacts section.

Applicants would develop and implement a project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meets the approval of the appropriate DRECP Coordination Group. The Bird and Bat Covered Species Operational Actions aims to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar, geothermal, or transmission project.

A bird mortality monitoring program will be implemented during operations using current protocols and best procedures available at time of monitoring. Bird and Bat Covered Species Operational Actions would include compensatory mitigation to offset the inadvertent mortality to covered avian species. Such compensation would be in accordance with AM-LL-4 and may include ongoing/annual fees. The biological basis for the fee will be determined by the mortality effects as annually measured and monitored according to AM-LL-4.

In addition, transmission projects would implement transmission specific CMAs that would: where feasible, bury electrical collector lines along roads (AM-TRANS-1); fit flight diverters on all transmission projects spanning or within 1,000 feet of water bodies and watercourses (AM-TRANS-2); avoid siting transmission projects that span canyons or are located on ridgelines (AM-TRANS-3); restrict transmission projects to within designated utility corridors (AM-TRANS-4). With the implementation of CMAs impacts to Covered Species would minimized.

The inclusion of the DRECP Variance Lands under Alternative 4, while not analyzed as if they were developed, have the potential to be developed in the future. Due to the remote nature of these lands, transmission lines would likely be needed to support any future development in these areas and the designation of these lands as DRECP Variance Lands has the potential to increase the risk of transmission effects on sensitive species.

Operational Impacts Take Estimates for Covered Avian and Bat Species

The following section summaries the initial estimates for take of Covered Species by operational activities that would require compensatory mitigation. Take estimates integrate all sources of mortality for each technology that are discussed above. Section IV.7.1.1.2 provides the method used to estimate the operational take for Covered avian and bat species provided here. Based on the location of DFAs and MW distribution, it is expected that take of Covered Species associated with Agricultural habitats would be particularly affected, which would include Covered Species such as burrowing owl, Swainson's hawk, greater sandhill crane and mountain plover.

Table IV.7-267
Plan-Wide Estimated Total Take for Covered Avian and Bat Species – Alternative 4

Covered Bird and Bat Species	Solar Impact	Wind Impact	Geothermal Impact	Total Impact
Bendire's thrasher	30	20	0	50
Burrowing owl	130	10	20	160
California condor[1]	0	0	0	0
California black rail	40	10	10	50
Gila woodpecker	40	0	0	40
Golden eagle[2]	n/a	n/a	n/a	n/a
Least Bell's vireo	80	0	0	90
Mountain plover	80	20	20	120
Greater sandhill crane	10	0	10	20
Southwestern willow flycatcher	70	10	0	80
Swainson's hawk	40	10	0	50
Tricolored blackbird	60	30	0	90
Western yellow billed cuckoo	40	0	0	50
Yuma clapper rail	40	10	10	50
Grand Total Avian Species	660	120	70	850
California leaf-nosed bat	20	50	0	70
Pallid bat	20	80	0	100
Townsend's big-eared bat	60	20	10	80
Grand Total Bat Species	100	150	10	250

1 Take for California condor would not be permitted under the DRECP

2 Take of Golden Eagle would be permitted on a project by project basis. Based on the 2013 analysis, no more than 15 golden eagles per year would be authorized for 2014 for any new activity within the Plan Area. Take limits for the DRECP area will be re-evaluated annually based on the amount of ongoing take and population estimates of eagles within the local-area population of eagles.

Note: The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the

nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table

Impact Reduction Strategies and Mitigation

The implementation of the Plan would result in conservation of some desert lands as well as the development of renewable energy generation and transmission facilities on other lands. There are several ways in which the impacts of the renewable energy development covered by the Plan would be lessened. First, the Plan incorporates specific biological reserve design components and LUPA components for each alternative. Additionally, Covered Activities under the Plan would be required to implement CMAs to avoid and minimize impacts inside and outside the DFAs and CMAs to compensate for the impacts of Covered Activities. Additionally, the implementation of existing laws, orders, regulations and standards would reduce the impacts of project development. If significant impacts would still result after implementation of CMAs and compliance with applicable laws and regulations, then specific mitigation measures are recommended in this section.

Conservation and Management Actions

The conservation strategy for Alternative 4 (presented in Volume II) defines specific actions that would reduce the impacts of this alternative. The impact assessment above references applicable avoidance, minimization, and compensation CMAs that would reduce and compensate for the impacts of Covered Activities.

For all Covered Activities throughout the Plan Area, the avoidance and minimization Plan-wide CMAs AM-PW-1 through AM-PW-17 would be required to reduce potential adverse effects through the implementation of Plan-wide standard practices. Resource-specific CMAs would be required for Covered Activities impacting specific resources, including the CMAs under AM-DFA-RIPWET, AM-DFA-DUNE, AM-DFA-ONC, AM-DFA-AG, AM-DFA-BAT, AM-DFA-PLANT, AM-DFA-ICS, and AM-DFA-BLMSS. Additionally, all impacts resulting from Covered Activities in the Plan Area would be required to compensate impacts to biological resources (COMP-1 and COMP-2), operational impacts to birds and bats (COMP-3), and impacts to golden eagle (COMP-4 and COMP-5).

Laws and Regulations

Similar to the No Action Alternative, existing laws and regulations will reduce certain impacts of Covered Activity implementation. Relevant regulations are presented in the Regulatory Setting in Volume III. The requirements of relevant laws and regulations are summarized above for the No Action Alternative in Section IV.7.3.1.1.1.

Mitigation Measures

After implementation of the CMAs and existing laws and regulations, mitigation measures will be applied to further reduce some of the adverse impacts on biological resources. The biological conservation strategy is an essential part of the project description for the DRECP. Implementation of the DRECP, including the CMAs, would avoid, minimize, and compensate for the impacts of the Covered Activities such that additional mitigation measures are not necessary for all but the following resource impacts.

Mitigation Measure for Impact BR-1. Siting and construction of renewable energy and transmission development would result in impacts to rare natural communities. If habitat assessments identify rare natural communities on or within 0.25 miles of a project site, the DRECP shall require the following measure be implemented.

> **BR-1a:** Prepare a Rare Natural Community Avoidance and Mitigation Plan that specifically addresses how rare natural communities would be avoided or mitigated for any ground disturbance impacts sited within 0.25 mile of mapped rare natural communities. The Plan shall be prepared as part of the project-specific environmental review.
>
> For avoidance of rare natural communities, the Plan shall demonstrate that the project facilities have been sited or that the project has implemented appropriate site-specific design features to ensure that the effects of the proposed project would not directly impact or contribute to indirect effects on the rare natural communities on or adjacent to the project site. Avoidance of potential indirect effects on rare natural communities relate to dust, fire management, invasive plants, and degradation of ecological processes (i.e., hydrological processes and soil processes).
>
> For impacts to rare natural communities, the Plan shall demonstrate that the compensation used to offset the impacts of the proposed project through CMAs COMP-1 and COMP-2 also offsets the loss of rare natural community alliances through in-kind acquisition or non-acquisition actions that benefit the rare natural community alliance(s) impacted.

IV.7.3.6.1.2 Impacts from Reserve Design

The impacts of the reserve design collectively refers to the designation and management of existing conservation areas (i.e., LLPAs and MEMLs), BLM LUPA conservation designations, and reserves established within Conservation Planning Areas. These are considered beneficial impacts for biological resources, and this section serves as a biological resources conservation analysis for this alternative. This section is organized by biological resource at the landscape level, natural community level, and species level.

Overall, of the 14,478,000 acres within the Alternative 4 Reserve Design Lands, 39% is within BLM LUPA conservation designations, 8% in the Conservation Planning Areas, and the remaining 53% are located in existing conservation areas. The SAA from the Preferred Alternative located in the Silurian Valley is not be conserved under Alternative 4 (it is designated as DRECP Variance Lands or is Undesignated). The northern portion of the SAA from the Preferred Alternative located north of Kramer Junction in the West Mojave would be conserved in ACEC under Alternative 4 (the remainder of this SAA is designated as DRECP Variance Lands).Within the Reserve Design Lands, the interagency Plan-wide Conservation Priority Area covers approximately 2,053,000 acres, including 1,847,000 acres of BLM LUPA conservation designations and 196,000 acres of Conservation Planning Areas.

The DRECP Plan-Wide Reserve Design Envelope for Alternative 4 was developed from the reserve design envelope developed through the reserve design process described in Section I.3.4.4 and Appendix D; however, the extent of the DRECP Plan-Wide Reserve Design Envelope for Alternative 4 differs from the extent of the envelope described in Volume I because it was integrated with the other elements of the alternative.

Overall, the DRECP Plan-Wide Reserve Design Envelope for Alternative 4 includes 90% of the conceptual reserve design envelope described in Volume I. The DRECP Plan-Wide Reserve Design Envelope for Alternative 4 would also include high percentages of the total reserve design envelope in all of the subareas, ranging from 76% in Imperial Borrego Valley to 98% in the Panamint Death Valley subarea.

Areas not included in the DRECP Plan-Wide Reserve Design Envelope for Alternative 4 that are in the reserve design envelope include:

- Portions of Study Area Lands: The DRECP Variance Lands occupy approximately 461,000 acres that were identified in the Plan-wide reserve design envelope that are not in the DRECP Plan-Wide Reserve Design Envelope for Alternative 4, which includes BLM-administered lands throughout the Plan Area. This includes DRECP Variance Lands south of the Chocolate Mountains in eastern Imperial Borrego Valley subarea, in Rice Valley in northern Cadiz Valley and Chuckwalla Mountains subarea, and in the Silurian Valley area of the Kingston and Funeral Mountains and

Mojave and Silurian Valley subareas. The uncertainty regarding conservation and the absence of management or conservation on these DRECP Variance Lands under Alternative 4 is considered an adverse effect of the reserve design envelope due to following:

- Reduction in habitat linkage between Mojave National Preserve and MCGACC 29 Palms and south of Amboy Crater area
- Reduction in the Chuckwalla to Chemehuevi desert tortoise linkage area; leaves everything east of turtle mountains open for activities and uses that could result in habitat fragmentation.
- Potential to isolate Mule Mountains and reduce connectivity between the Mule Mountains and McCoy Valley
- Reduction in the conservation values in the Silurian Valley and Shadow Valley expansion areas
- Reduction in protections and conservation values in the area between Indian Pass and Algodones Dunes
- Reduction in connectivity and increase fragmentation around the Old Woman Spring ACEC
- Increased habitat fragmentation around Granite Mountain

- Portions of the DFAs: Areas in DFAs under Alternative 4 occupy approximately 415,000 acres that were identified in the conceptual reserve envelope that are not be designated as Reserve Design Lands, including the following geographic areas:
  - Palen and Chuckwalla Valley along Interstate 10 in east Riverside County
  - Lucerne Valley area along Highway 247
  - Western and eastern areas of Imperial Valley
  - East and west of Barstow
  - Foothill areas of the Antelope Valley
  - Coso Range area
- Undesignated Areas : Approximately 567,000 acres were not designated as Reserve Design Lands under Alternative 4 that were identified in the conceptual reserve envelope, which is primarily comprised of BLM-administered lands in the Plan Area without BLM LUPA conservation designations over them.

Landscape

Habitat Linkages

Figures III.7-26 through III.7-36 in Chapter III.7 of Volume III shows the desert linkage network for the Plan Area and in each ecoregion subarea. Table IV.7-268 shows the Plan-wide conservation of the desert linkage network under Alternative 4. Conservation of the desert linkage network totals more than 2.4 million acres (66%).

The linkage in the northern portion of the Cadiz Valley and Chocolate Mountains subarea that connects the Ward and Cadiz Valleys through the Old Woman Mountains is almost entirely conserved. The three smaller connections in the Palen Valley are all entirely conserved. Though the majority of the remaining linkages are conserved, there are some DFAs that that may interrupt them (see Section IV.7.3.6.1.1). None of the linkages in the Imperial Borrego Valley are entirely conserved. The linkages in the Kingston and Funeral Mountains subarea along Shadow Valley is almost entirely conserved while the remaining linkages in this subarea are only partly conserved. None of the linkages in the Mojave and Silurian Valley subarea are entirely conserved since the middle portion of the subarea is not in Reserve Design Lands. A section of the single linkage in the Owens River Valley subarea is not conserved. The connectivity of the northernmost linkage in the Panamint Death Valley subarea is preserved along the Searles Range, but not between the Searles and Argus Ranges since a portion of the Searles Valley is not conserved. The connection in the China Lake Naval Weapon Center is not conserved in Reserve Design Lands, but most of the remainder of this linkage to the west is conserved. Most of the linkage in the eastern portion of the subarea is in Reserve Design Lands except the westernmost portion. In the Pinto Lucerne Valley and Eastern Slopes subarea, none of the linkages are completely conserved, but the southern portion of all of them are except for the linkage that extends into the West Mojave and Eastern Slopes subarea, which is entirely conserved within the Pinto Lucerne Valley and Eastern Slopes subarea. For the most part only the linkages along the eastern boundary of the Piute Valley and Sacramento Mountains subarea would not be in Reserve Design Lands. The linkages in eastern portion of the Providence and Bullion Mountains subarea would be largely maintained in Reserve Design Lands, but area outside of Reserve Design Lands around the Twentynine Palms Marine Corps Base potentially disrupts linkages in the western portion of the subarea. In the West Mojave and Eastern Slopes subarea the connection between the southern boundary of the Plan Area directly north to the Los Angeles/Kern County line is mostly conserved. Although large portions of the other linkages in this subarea are conserved, none of them are wholly conserved in Reserve Design Lands.

In addition to conservation of the desert linkage network, CMAs provide for the avoidance and minimization of certain linkages in the DFAs (see Section IV.7.3.6.1.1).

The DRECP Plan-Wide Reserve Design Envelope for Alternative 4 was developed, in part, to conserve and avoid impacts to habitat linkages and wildlife movement, including the desert linkage network; however, the inclusion of DRECP Variance Lands in this alternative and the uncertainty of future management of these lands undermines the strength of the DRECP Plan-Wide Reserve Design Envelope for Alternative 4. The designation of DRECP Variance Lands scattered across the Plan Area under Alternative 4 leads to uncertainty regarding the protection and long-term viability of the habitat linkages within the reserve design envelope.

Table IV.7-268
Plan-Wide Conservation Analysis for the Desert Linkage Network – Alternative 4

Desert Linkage Network by Ecoregion Subarea	Available Lands (acres)	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Cadiz Valley and Chocolate Mountains	890,000	187,000	384,000	13,000	584,000	66%
Imperial Borrego Valley	156,000	14,000	54,000	400	68,000	44%
Kingston and Funeral Mountains	174,000	28,000	88,000	1,000	118,000	68%
Mojave and Silurian Valley	507,000	179,000	198,000	6,000	383,000	76%
Owens River Valley	19,000	40	12,000	200	12,000	63%
Panamint Death Valley	206,000	109,000	75,000	500	184,000	89%
Pinto Lucerne Valley and Eastern Slopes	291,000	16,000	123,000	3,000	142,000	49%
Piute Valley and Sacramento Mountains	152,000	14,000	93,000	2,000	110,000	72%
Providence and Bullion Mountains	426,000	144,000	200,000	4,000	348,000	82%
West Mojave and Eastern Slopes	860,000	45,000	380,000	45,000	470,000	55%
Grand Total	**3,682,000**	**736,000**	**1,606,000**	**77,000**	**2,419,000**	**66%**

1 Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs).

2 Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), which includes BLM and non-BLM inholdings within the designation.

3 Conservation Planning Areas include areas of the reserve design from which reserve areas would be assembled on private and other public land.

Notes: Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1.2.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages

are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Hydrological Resources

A conservation analysis for hydrological resources is provided below, including playa, seep/spring, and the four major rivers in the Plan Area (i.e., Amargosa, Colorado, Mojave and Owens) for Alternative 4. Conservation of riparian areas and wetlands, which co-occur with many of these hydrological resources, is provided below under Natural Communities.

Playa

Playa totals 322,000 acres in the Plan Area. Overall, 57% (183,000 acres) would be conserved under Alternative 4. Existing Conservation would account for 52% of the conservation, BLM LUPA would account for 47%, and Conservation Planning Areas would account for 1%. Additionally, playas and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks. CMAs for playas would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided riparian or wetland natural communities.

Seep/Spring

There are 480 seep/spring locations in the Plan Area in the U.S. Geological Survey (USGS) National Hydrography Dataset (NHD) in available lands. Overall, 63% (305locations) of the seep/spring locations would be conserved under Alternative 4. The conservation of seep/spring under Alternative 4 would be more than half in all subareas except for Imperial Borrego Springs 9 (44%, 10 locations), West Mojave and Eastern Slopes (43%, 41 locations) and Owens River Valley (32%, 12 locations). The other subareas include Cadiz Valley and Chocolate Mountains (100%, 5 locations), Kingston and Funeral Mountains (70%, 58 locations), Mojave and Silurian Valley (75%, 20 locations), Panamint Death Valley (93%, 39 locations), Pinto Lucerne Valley and Eastern Slopes (62%, 51 locations), Piute Valley and Sacramento Mountains (75%, 14 locations) and Providence and Bullion Mountains (84%, 56 locations).

Overall, Existing Conservation would account for 63% of the conservation of seep/spring, BLM LUPA conservation designations would account for 34%, and Conservation Planning Areas would account for 3%. Additionally, seeps and springs and associated Covered Species, natural communities, and hydrological functions would be avoided through

application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks. However, it is likely that most, if not all, that all seep/spring locations and associated Covered Species and hydrological functions would be conserved through adherence to site-specific CMAs. CMAs for seep/spring locations would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided wetland natural communities.

Major Rivers

Overall, 71% of the major rivers would be conserved under Alternative 4, including 87% of the Amargosa River, 42% of the Colorado River, 70% of the Mojave River, and 70% of the Owens River. Conservation Planning Areas would account for 34% of the conservation of the major rivers, Existing Conservation would account for 45%, and BLM LUPA conservation designations would account for 21%. Additionally, major rivers and associated Covered Species, natural communities, and hydrological functions would be fully avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks.

Dune and Sand Resources

Overall, 69% (1,038,000 acres) of dunes and sand resources would be conserved under Alternative 4. At least 50% of dunes and sand resources would be conserved in 8 subareas in the Plan Area that contain substantial acreage of dunes and sand resources, including Cadiz Valley and Chocolate Mountains at 73% (437,000 acres), Imperial Borrego Valley at 58% (77,000 acres), Kingston and Funeral Mountains at 66% (46,000 acres), Mojave and Silurian Valley at 80% (161,000 acres), Owens River Valley at 52% (4,000 acres), Panamint and Death Valley at 84% (118,000 acres), Pinto Lucerne Valley and Eastern Slopes at 59% (38,000 acres) and the Providence and Bullion Mountains at 59% (146,000 acres). The subarea with lower conservation of dunes and sand resources under Alternative 4 is West Mojave and Eastern Slopes at 33% (12,000 acres), and. Importantly, dunes and sand resources and associated Covered Species, natural communities and ecological functions would be fully avoided through application of the dune avoidance and minimization CMAs.

Environmental Gradients

The conservation analysis addresses four types of environmental gradients in the Plan Area: elevation, landforms, slope, and aspect.

Elevations are characterized by 1,000-foot interval classes ranging from below sea level to 9,000 feet. Approximately 92% of the Plan Area is between sea level and 5,000 feet, 6% is below sea level, and 2% is above 5,000 feet. Under Alternative 4, the majority of available

lands would be conserved at all elevation classes above sea level, ranging from 58% for the 0 to 1,000 feet class to 59% of the 7,000 to 8,000 feet class. The average conservation of elevation classes above sea level would be 68%. The majority of Plan Area lands for each elevation class above sea level will be conserved under Alternative 4 optimizing the potential for successful species range shifts, contractions, and expansions, which may occur in response to climate change. In addition, the conservation of such a high proportion of Plan Area lands across all elevation classes allows for the conservation of the greatest range and diversity of natural communities and Covered Species habitats. Conserving the majority of each elevation class within the Plan Area will also promote ecological processes and help sustain natural communities and Covered Species.

Landforms in the Plan Area include canyons/deeply incised streams, mountain tops/high ridges, open slopes, and plains. Plains are the dominant landform in the Plan Area totaling 13,906,386 acres, or 73% of the Plan Area. Conservation of the plains landform under Alternative 4 would include 65% of plains. As the majority of Covered Species in the Plan Area are associated with plains during part or all of its life cycle, the conservation of the majority of this landform is of benefit to a large number of Covered Species including those Covered Species that spend its entire life cycle within this type of landform, and those Covered Species that utilize it during parts of its life cycle such as for breeding, migration, or wintering. Open slopes make up about 16% of the Plan Area and canyons/deeply incised streams and mountain tops/high ridges each make up about 5% to 6% of the Plan Area.

Conservation of the remaining landforms under Alternative 4 would include 86% of canyons/deeply incised streams, 85% of mountain tops/high ridges, and 83% of open slopes. As the majority of Plan Area lands for all landforms will be conserved under Alternative 4, it optimizes the potential for successful species range shifts, contractions, and expansions, which may occur in response to climate change. In addition, the conservation of such a high proportion of Plan Area lands across all landforms allows for the conservation of the greatest range and diversity of natural communities and Covered Species habitats. Conserving the majority of each landform within the Plan Area will also promote ecological processes and help sustain natural communities and Covered Species.

Slopes in the Plan Area are characterized by 5% interval classes. Sixty-one percent of the Plan Area lands are on slopes up to 5%, and 87% of the Plan Area lands are on slopes less than 20%. Conservation of the slope classes under Alternative 4 would range from 62% of slopes up to 5% to 93% of slopes over 100%, with 84% of slopes less than 20% conserved under Alternative 4. The vast majority of Plan Area lands within each slope class will be conserved under Alternative 4 optimizing the potential for successful species range shifts, contractions, and expansions, which may occur in response to climate change. In addition, the conservation of such a high proportion of Plan Area lands across all slope classes allows for the conservation of the greatest range of natural communities and Covered Species

habitats. Conserving the majority of each slope class within the Plan Area will also promote ecological processes and help sustain natural communities and Covered Species.

Aspects in the Plan Area include nine classes: north, northeast, east, southeast, south, southwest, west, northwest, and flat. Except for flat, the remaining eight aspects are fairly evenly distributed in the Plan Area, ranging from 9% for northwest aspects to 15% for northeast aspects. Flat terrains account for only 1% of the Plan Area. Under Alternative 4, conservation of aspects would range from 67% for flat terrain to 80% of south aspect. The majority of Plan Area lands for each aspect class will be conserved under Alternative 4 optimizing the potential for successful species range shifts, contractions, and expansions, which may occur in response to climate change. In addition, the conservation of such a high proportion of Plan Area lands across all aspect classes allows for the conservation of the greatest range of natural communities and Covered Species habitats. As a number of plant Covered Species have specific aspect requirements, the conservation of the majority of lands within each aspect class is beneficial to those species. Conserving the majority of each aspect class within the Plan Area will also promote ecological processes and help sustain natural communities and Covered Species.

Natural Communities

Table IV.7-269 shows the conservation to natural communities within the reserve design. A conservation summary by general community is provided below. Appendix R2 provides a detailed analysis of natural community conservation by ecoregion subarea.

California forest and woodlands

Overall, approximately 62,000 acres (41%) of California forest and woodlands would be conserved under Alternative 4. The majority of conservation would occur in the West Mojave and Eastern Slopes and Pinto Lucerne Valley and Eastern Slopes subareas and approximately 20 acres would be conserved in the Owens River Valley subarea. Conservation would primarily come from BLM LUPA conservation designations. In addition to conservation of California forest and woodlands, CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

California forest and woodlands provide habitat for the following Covered Species: Tehachapi slender salamander, golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, bighorn sheep, and Bakersfield cactus. Therefore, conservation of California forest and woodlands would provide conservation of suitable habitat for these species.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 31,000 acres (28%) of chaparral and coastal scrubs would be conserved under Alternative 4. The majority of conservation would occur in the West Mojave and Eastern Slopes and Pinto Lucerne Valley and Eastern Slopes subareas. Conservation would primarily come from Conservation Planning Areas and BLM LUPA. In addition to conservation of chaparral and coastal scrubs, CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Chaparral and coastal scrubs provide habitat for the following Covered Species: golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, Parish's daisy, and Bakersfield cactus. Therefore, conservation of chaparral and coastal scrubs would provide conservation of suitable habitat for these species.

Desert conifer woodlands

Overall, approximately 185,000 acres (65%) of desert conifer woodlands would be conserved under Alternative 4. The majority of conservation would occur in the Pinto Lucerne Valley and Eastern Slopes and Providence and Bullion Mountains subareas. Conservation of this general community would primarily come from existing conservation (approximately 159,000 acres). In addition to conservation of desert conifer woodlands, CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert conifer woodlands provide habitat for the following Covered Species: Tehachapi slender salamander, golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, bighorn sheep, and Parish's daisy. Therefore, conservation of desert conifer woodlands would provide conservation of suitable habitat for these species.

Desert outcrop and badlands

Overall, approximately 1,237,000 acres (77%) of desert outcrop and badlands would be conserved under Alternative 4. The majority of the conservation would occur in the Cadiz Valley and Chocolate Mountains and Piute Valley and Sacramento Mountains subareas. Most of the total conservation of desert outcrop and badlands are in areas of existing conservation. In addition to conservation of desert outcrop and badlands, CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert outcrop and badlands provide habitat for the following Covered Species: golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, and bighorn sheep. Desert outcrop and badlands also provides habitat for desert kit fox (Planning Species). Covered Species associated with desert scrub may also be associated with this general community. Therefore, conservation of desert outcrop and badlands would provide conservation of suitable habitat for these species.

Desert scrubs

Overall, approximately 9,430,000 acres (71%) of desert scrubs would be conserved under Alternative 4. About half of the conserved acreage would occur in the Kingston and Funeral Mountains, Providence and Bullion Mountains, and Panamint Death Valley subareas. However, conservation of desert scrubs is well distributed with conservation in every subarea of the Plan Area. As the most prevalent desert scrub natural community in the Plan Area, lower bajada and fan Mojavean–Sonoran desert scrub accounts for the majority of the conservation of desert scrub communities. The majority (approximately 5,630,000 acres) of the total conservation of desert scrubs would be in existing conservation areas. In addition to conservation of desert scrubs, CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert scrubs provide habitat for the following Covered Species: golden eagle, California condor, Bendire's thrasher, burrowing owl, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, Mohave ground squirrel, bighorn sheep, desert tortoise, flat-tailed horned lizard, Mojave fringe-toed lizard, triple-ribbed milk-vetch, alkali mariposa-lily, desert cymopterus, Mojave tarplant, little San Bernardino Mountains linanthus, Mojave monkeyflower, and Bakersfield cactus. Desert scrubs also provide habitat for desert kit fox and burro deer (Planning Species). Therefore, conservation of desert scrubs would provide conservation of suitable habitat for these species.

Dunes

Overall, approximately 207,000 acres (73%) of dune natural communities would be conserved under Alternative 4. The majority of the conserved acreage would occur in the Mojave and Silurian Valley, Imperial Borrego Valley, and Panamint Death Valley subareas. The remaining conserved acreage is distributed throughout the remaining subareas. The majority of the total conservation of desert dunes would be in existing conservation. In addition to conservation of desert dunes, application of the CMAs would require that dune communities be avoided to the maximum extent feasible in DFAs. In addition, CMA application would prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

Dune communities provide habitat for the following Covered Species: Mojave fringe-toed lizard and flat-tailed horned lizard. Therefore, conservation of desert dunes would provide conservation of suitable habitat for these species.

Grasslands

Overall, approximately 52,000 acres (22%) of grasslands would be conserved under Alternative 4. The majority of the conserved acreage would occur in the Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas. As the most prevalent grassland natural community in the Plan Area, California Annual and Perennial Grassland accounts for the vast majority of the conservation of grassland communities. Conservation amongst existing conservation, BLM LUPA conservation designations, and Conservation Planning Areas is relatively well distributed. In addition to conservation of grasslands, CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Grassland communities provide habitat for the following Covered Species: golden eagle, burrowing owl, mountain plover, Swainson's hawk, and Bendire's thrasher. Grassland communities also provide habitat for desert kit fox (Planning Species). Therefore, conservation of grasslands would provide conservation of suitable habitat for these species.

Riparian

Overall, approximately 621,000 acres (63%) of riparian communities would be conserved under Alternative 4. The majority of the conserved acreage would occur in the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas. As the most prevalent riparian natural community in the Plan Area, Madrean Warm Semi-Desert Wash Woodland/Scrub accounts for the majority of the conservation of riparian communities. Most of the conservation of riparian communities would occur in BLM LUPA conservation designations. In addition to conservation of riparian communities, impacts to riparian communities would not occur under Alternative 4 since application of the CMAs would require that riparian communities be avoided to the maximum extent feasible in DFAs. In addition, setbacks from riparian communities would be required that range from 200 feet for Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub to 0.25 mile for Southwestern North American riparian evergreen and deciduous woodland and Southwestern North American riparian/wash scrub.

Riparian communities include microphyll woodlands, which include groundwater-dependent vegetation (e.g., mesquite bosques). Under Alternative 1, conservation for microphyll woodland related natural communities would include: 65% of Madrean warm

semi-desert wash woodland/scrub, 57% of Mojavean semi-desert wash scrub, and 65% of Sonoran-Coloradan semi-desert wash woodland/scrub.

Riparian communities provide habitat for the following Covered Species: California black rail, Gila woodpecker, Yuma clapper rail, least Bell's vireo, southwestern willow flycatcher, western yellow-billed cuckoo, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, and Tehachapi slender salamander. Riparian communities also provide habitat for burro deer (Planning Species). In addition, species associated with desert scrub are also associated with Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub. Conservation of riparian communities would benefit these species. Furthermore, there are also CMAs to avoid impacts to riparian species including pre-construction nesting bird surveys for riparian and wetland bird Covered Species.

Wetlands

Overall, approximately 440,000 acres (51%) of wetland communities would be conserved under Alternative 4. About half of the conserved acreage would occur in the Panamint Death Valley and West Mojave and Eastern Slopes subareas with the remaining conserved acreage distributed throughout the remaining subareas. As the most prevalent wetland natural communities in the Plan Area, conservation of North American warm desert alkaline scrub and herb playa and wet flat and Southwestern North American salt basin and high marsh account for the majority of the conservation of riparian communities. Almost half of the conservation of wetland communities would occur in BLM LUPA conservation designations. In addition to conservation of wetland communities, Arid West freshwater emergent marsh and Californian warm temperate marsh/seep would be avoided under Alternative 4 since application of the CMAs would require that these communities be avoided to the maximum extent feasible in DFAs, including a 0.25-mile setback. Also, CMAs for North American warm desert alkaline scrub and herb playa and wet flat, southwestern North American salt basin and high marsh, and other undifferentiated wetland-related land covers (i.e., "Playa", "Wetland", and "Open Water") would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided riparian or wetland natural communities.

Wetland communities provide habitat for the following Covered Species: California black rail, Yuma clapper rail, tricolored blackbird, California leaf-nosed bat, pallid bat, Townsend's big-eared bat, desert pupfish, Mohave tui chub, Owens pupfish, and Owens tui chub. In addition, species associated with desert scrub are also associated with Southwestern North American Salt Basin and High Marsh. Conservation of wetland communities would benefit these

species. Furthermore, there are also CMAs to avoid impacts to wetland species including pre-construction nesting bird surveys for riparian and wetland bird Covered Species.

Table IV.7-269
Plan-Wide Conservation Analysis for Natural Communities – Alternative 4

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
California forest and woodland						
Californian broadleaf forest and woodland	72,000	1,000	18,000	700	20,000	28%
Californian montane conifer forest	78,000	25,000	15,000	2,000	42,000	53%
Chaparral and coastal scrub community (Cismontane scrub)						
Californian mesic chaparral	4,000	20	600	200	900	22%
Californian pre-montane chaparral	1,000	0	400	10	500	36%
Californian xeric chaparral	24,000	3,000	1,000	3,000	7,000	27%
Central and south coastal California seral scrub	1,000	0	10	30	40	3%
Central and South Coastal Californian coastal sage scrub	54,000	2,000	8,000	2,000	12,000	23%
Western Mojave and Western Sonoran Desert borderland chaparral	24,000	9,000	200	800	10,000	43%
Desert conifer woodlands						
Great Basin Pinyon - Juniper Woodland	287,000	159,000	16,000	10,000	185,000	65%
Desert outcrop and badlands						
North American warm desert bedrock cliff and outcrop	1,613,000	802,000	421,000	13,000	1,237,000	77%
Desert Scrub						
Arizonan upland Sonoran desert scrub	57,000	44,000	2,000	800	47,000	82%
Intermontane deep or well-drained soil scrub	106,000	30,000	50,000	2,000	82,000	77%

Table IV.7-269
Plan-Wide Conservation Analysis for Natural Communities – Alternative 4

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Intermontane seral shrubland	74,000	1,000	4,000	2,000	7,000	10%
Inter-Mountain Dry Shrubland and Grassland	437,000	110,000	117,000	6,000	232,000	53%
Intermountain Mountain Big Sagebrush Shrubland and steppe	76,000	9,000	18,000	900	28,000	37%
Lower Bajada and Fan Mojavean - Sonoran desert scrub	10,858,000	4,561,000	3,154,000	169,000	7,884,000	73%
Mojave and Great Basin upper bajada and toeslope	1,333,000	838,000	186,000	23,000	1,046,000	78%
Shadscale - saltbush cool semi-desert scrub	279,000	38,000	49,000	18,000	104,000	37%
Southern Great Basin semi-desert grassland	100	0	40	0	40	35%
Dunes						
North American warm desert dunes and sand flats	282,000	146,000	56,000	5,000	207,000	73%
Grassland						
California Annual and Perennial Grassland	230,000	23,000	17,000	11,000	51,000	22%
California annual forb/grass vegetation	8,000	400	1,000	200	2,000	20%
Riparian						
Madrean Warm Semi-Desert Wash Woodland/Scrub	697,000	195,000	252,000	8,000	455,000	65%
Mojavean semi-desert wash scrub	30,000	7,000	9,000	2,000	17,000	57%
Riparian	600	20	0	300	300	56%

Table IV.7-269
Plan-Wide Conservation Analysis for Natural Communities – Alternative 4

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Sonoran-Coloradan semi-desert wash woodland/scrub	191,000	70,000	51,000	4,000	124,000	65%
Southwestern North American riparian evergreen and deciduous woodland	6,000	500	600	2,000	3,000	44%
Southwestern North American riparian/wash scrub	66,000	7,000	8,000	6,000	22,000	34%
Wetland						
Arid West freshwater emergent marsh	4,000	40	200	1,000	1,000	32%
Californian warm temperate marsh/seep	400	0	0	80	80	20%
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	310,000	136,000	69,000	2,000	207,000	67%
Open Water	209,000	23,000	700	24,000	47,000	23%
Playa	78,000	400	35,000	300	36,000	46%
Southwestern North American salt basin and high marsh	261,000	31,000	108,000	10,000	149,000	57%
Wetland	8,000	30	200	500	700	8%
Other Land Cover						
Agriculture	711,000	6,000	3,000	3,000	12,000	2%
Developed and Disturbed Areas	447,000	3,000	3,000	300	7,000	1%
Not Mapped	7,000	200	100	300	700	10%
Rural	114,000	900	4,000	8,000	13,000	11%
Total	19,040,000	7,279,000	4,678,000	340,000	12,297,000	65%

1 Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs).

2 Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), which includes BLM and non-BLM inholdings within the designation.

3 Conservation Planning Areas include areas of the reserve design from which reserve areas would be assembled on private and other public land.

Notes: Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1.2.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Covered Species Habitat

Table IV.7-270 shows the Plan-wide conservation of Covered Species modeled habitat under Alternative 4 (before the application of CMAs). Generally, the percent conservation of Covered Species modeled habitat in available lands is highly variable, ranging from 1% for greater sandhill crane (primarily found in agricultural areas) to 82% for bighorn sheep mountain habitat.

Conservation percentages are in large part related to the location and types of habitat modeled for the Covered Species. For example, modeled habitat for greater sandhill crane, which is primarily freshwater wetland and agriculture, is limited to the Palo Verde and Imperial valleys and is mostly within DFAs.

Much of the modeled habitats for desert tortoise and Mojave fringe-toed lizard are in the Mojave Desert in areas that are either already in Existing Conservation or occur in the BLM LUPA conservation designations. Flat-tailed horned lizard modeled habitat is only conserved in the Imperial Borrego Valley, mostly in BLM LUPA conservation designations. Tehachapi slender salamander modeled habitat occurs in the Tehachapi Mountains where conservation is primarily composed of BLM LUPA conservation designations. Furthermore, the siting of the DFAs under Alternative 4 largely avoid habitat for Mojave fringe-toed lizard and Tehachapi slender salamander, and CMAs require avoidance of and setbacks from riparian habitat, wetland habitat, and dune habitat would further avoid and minimize the impacts on these species.

Conservation of bird species associated primarily with wetland and riparian habitats, including California black rail, least Bell's vireo, southwestern willow flycatcher, tricolored blackbird, western yellow-billed cuckoo, and Yuma clapper rail would be augmented by CMAs requiring avoidance of and setbacks from riparian and wetland habitats. Conservation of Bendire's thrasher occurs in every subarea of the Plan Area, but is mainly in existing conservation. Burrowing owl, widespread, but mainly associated with open areas in the West Mojave and Eastern Slopes and agricultural areas in the Imperial Borrego Valley, would primarily be conserved in the same subareas and most of the conservation would occur in BLM LUPA conservation designations.

California condor mainly occurs in the West Mojave and Eastern Slopes subarea so the majority of conservation is also in this subarea with most of the conserved acreage in BLM LUPA conservation designations. Golden eagle modeled suitable habitat and associated conservation is widespread in the Plan Area with most of the conservation in existing conservation areas. Swainson's hawk is primarily associated with the West Mojave and Eastern Slopes, Imperial Borrego Valley, and Owens River Valley subareas; of these subareas, more than 20% of suitable habitat is conserved only in the Owens River Valley subarea. In addition to conservation of suitable habitat, CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs.

Most of the modeled suitable habitat for Gila woodpecker is conserved in the Imperial Borrego Valley in BLM LUPA conservation designations. Conservation of mountain plover suitable habitat is mostly in Conservation Planning Areas in the West Mojave and Eastern Slopes subarea.

Conservation of suitable habitat for desert pupfish and Mohave tui chub is mostly in existing conservation areas. Although conservation of desert pupfish is relatively low, especially in the Imperial Borrego Valley subarea, avoidance and setback provisions for managed wetlands and agricultural drains would conserve wetland and riparian features within the agricultural matrix and provide conservation benefits to desert pupfish. Owens pupfish and Owens tui chub are conserved primarily in Conservation Planning Areas.

Conservation of suitable habitat for bighorn sheep, both inter-mountain and mountain habitat, is widespread and is mainly in existing conservation areas. The siting of the DFAs under Alternative 4 largely avoid habitat for bighorn sheep. At least half of the conservation of Mojave ground squirrel suitable habitat is from BLM LUPA conservation designations. Suitable habitat for the covered bat species—California leaf-nosed bat, pallid bat, and Townsend's big-eared bat—is widespread and mainly conserved in existing conservation areas. In addition to conservation of suitable habitat for covered mammal species, the CMAs require avoidance of and setbacks from riparian and wetland habitat that would reduce impacts on these habitats used by Mohave ground squirrel, California leaf-nosed bat, pallid bat, and Townsend's big-eared bat.

Conservation of plant species ranges from 7% of suitable habitat for alkali mariposa-lily to 74% of suitable habitat for Mojave monkeyflower. The proportion of suitable habitat conserved in existing conservation, BLM LUPA conservation designations, and Conservation Planning Areas varies by species. However, in addition to the conservation of modeled suitable habitat, the CMAs requiring surveys for plant Covered Species for all Covered Activities, and the CMAs requiring avoidance of and setbacks from occupied habitat would further reduce the impacts on these species.

In addition to conservation of suitable habitat for Covered Species, compensation CMAs would offset habitat loss for all Covered Species.

Table IV.7-270
Plan-Wide Conservation Analysis for Covered Species Habitat – Alternative 4

Species	Available Lands (acres)	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Amphibian/Reptile						
Agassiz's desert tortoise	9,858,000	3,711,000	3,179,000	184,000	7,075,000	72%
Flat-tailed horned lizard	758,000	151,000	262,000	4,000	417,000	55%
Mojave fringe-toed lizard	1,094,000	403,000	351,000	13,000	767,000	70%
Tehachapi slender salamander	48,000	300	12,000	500	13,000	27%
Bird						
Bendire's thrasher	2,141,000	1,196,000	384,000	29,000	1,608,000	75%
Burrowing owl	5,269,000	479,000	1,204,000	179,000	1,862,000	35%
California black rail	197,000	21,000	10,000	6,000	37,000	19%
California condor	1,240,000	81,000	180,000	38,000	299,000	24%
Gila woodpecker	106,000	10,000	14,000	2,000	26,000	25%
Golden eagle–foraging	10,747,000	5,518,000	2,736,000	114,000	8,369,000	78%
Golden eagle–nesting	4,443,000	2,689,000	815,000	43,000	3,548,000	80%
Greater sandhill crane	617,000	6,000	2,000	1,000	9,000	1%
Least Bell's vireo	226,000	86,000	35,000	17,000	138,000	61%
Mountain plover	828,000	7,000	5,000	11,000	23,000	3%
Southwestern willow flycatcher	317,000	18,000	30,000	18,000	65,000	20%
Swainson's hawk	1,455,000	24,000	56,000	61,000	142,000	10%
Tricolored blackbird	271,000	11,000	6,000	15,000	32,000	12%
Western yellow-billed cuckoo	152,000	15,000	11,000	23,000	49,000	32%
Yuma clapper rail	51,000	10,000	1,000	2,000	13,000	25%
Fish						
Desert pupfish	8,000	900	300	300	1,000	18%
Mohave tui chub	300	200	-	20	200	79%
Owens pupfish	18,000	600	1,000	3,000	5,000	30%
Owens tui chub	17,000	700	1,000	3,000	5,000	30%

Table IV.7-270
Plan-Wide Conservation Analysis for Covered Species Habitat – Alternative 4

Species	Available Lands (acres)	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Mammal						
Bighorn sheep – inter-mountain habitat	3,854,000	1,904,000	1,050,000	24,000	2,978,000	77%
Bighorn sheep – mountain habitat	6,649,000	4,085,000	1,280,000	59,000	5,425,000	82%
California leaf-nosed bat	7,132,000	3,138,000	2,041,000	65,000	5,244,000	74%
Mohave ground squirrel	2,383,000	216,000	863,000	146,000	1,224,000	51%
Pallid bat	16,411,000	6,836,000	4,400,000	275,000	11,511,000	70%
Townsend's big-eared bat	14,677,000	5,879,000	3,853,000	266,000	9,998,000	68%
Plant						
Alkali mariposa-lily	119,000	200	800	8,000	9,000	7%
Bakersfield cactus	278,000	20,000	62,000	4,000	86,000	31%
Barstow woolly sunflower	154,000	3,000	86,000	12,000	101,000	66%
Desert cymopterus	205,000	7,000	83,000	17,000	107,000	52%
Little San Bernardino Mountains linanthus	289,000	87,000	31,000	5,000	122,000	42%
Mojave monkeyflower	161,000	27,000	91,000	700	118,000	74%
Mojave tarplant	265,000	48,000	90,000	3,000	142,000	53%
Owens Valley checkerbloom	147,000	13,000	5,000	17,000	35,000	24%
Parish's daisy	188,000	82,000	40,000	2,000	124,000	66%
Triple-ribbed milk-vetch	8,000	5,000	10	400	5,000	71%

1 Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs).

2 Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), which includes BLM and non-BLM inholdings within the designation.

3 Conservation Planning Areas include areas of the reserve design from which reserve areas would be assembled on private and other public land.

Notes: Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1.2.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000;

values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For Agassiz's desert tortoise, desert tortoise important areas were identified that include tortoise conservation areas (TCAs), desert tortoise linkages, and desert tortoise high priority habitat (see desert tortoise BGOs in Appendix C). Table IV.7-271 provides a conservation analysis for these desert tortoise important areas, organized by desert tortoise Recovery Units: Colorado Desert, Eastern Mojave, and Western Mojave. Within the Colorado Desert Recovery Unit, 85% of TCAs, linkage habitat, and high priority habitat would be conserved under Alternative 4. Within the Eastern Mojave Recovery Unit, 89% of the important areas would be conserved Alternative 4. Within the Western Mojave Recovery Unit, 76% of TCAs and linkage habitat would be conserved under Alternative 4. CMAs would require avoidance of TCAs, except for impacts associated with transmission or impacts in disturbed portions of TCAs. Additionally, the CMAs would prohibit impacts that affect the viability of desert tortoise linkages. Compensation CMAs would be required for impacts to desert tortoise, including desert tortoise important areas. The designation of DRECP Variance Lands scattered across the Plan Area under Alternative 4 leads to uncertainty regarding the protection and long-term viability of the linkage habitat for desert tortoise within the reserve design envelope.

Table IV.7-271
Plan-Wide Conservation Analysis for Desert Tortoise Important Areas – Alternative 4

Recovery Unit	Desert Tortoise Important Areas	Available Lands (acres)	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Colorado Desert	High Priority Habitat	387,000	157,000	85,000	4,000	246,000	64%
	Linkage	469,000	126,000	220,000	4,000	350,000	75%
	TCA	3,130,000	1,544,000	1,215,000	16,000	2,775,000	89%
Colorado Desert Total		*3,985,000*	*1,827,000*	*1,520,000*	*25,000*	*3,371,000*	***85%***
Eastern Mojave	Linkage	784,000	421,000	205,000	6,000	633,000	81%
	TCA	2,096,000	1,758,000	162,000	10,000	1,929,000	92%
Eastern Mojave Total		*2,880,000*	*2,179,000*	*367,000*	*16,000*	*2,562,000*	***89%***
Western Mojave	Linkage	1,204,000	391,000	225,000	26,000	642,000	53%
	TCA	2,313,000	1,061,000	967,000	3,000	2,030,000	88%
Western Mojave Total		*3,517,000*	*1,452,000*	*1,191,000*	*29,000*	*2,672,000*	***76%***
Grand Total		**10,382,000**	**5,458,000**	**3,078,000**	**69,000**	**8,606,000**	**83%**

1 Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs).

2 Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), which includes BLM and non-BLM inholdings within the designation.

[3] Conservation Planning Areas include areas of the reserve design from which reserve areas would be assembled on private and other public land.

Notes: Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1.2.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For Mohave ground squirrel, Mohave ground squirrel important areas were identified that include key population centers, linkages, expansion areas, and climate change extension areas (see Mohave ground squirrel BGOs in Appendix C). Table IV.7-272 provides a conservation analysis for these Mohave ground squirrel important areas. Approximately 71% of key population centers and 67% of linkages would be conserved under Alternative 4. Expansion areas and climate change extension areas would be conserved at 72% and 45% respectively. The CMAs would prohibit impacts that affect the viability of linkages. Compensation CMAs would be required for impacts to Mohave ground squirrel, including Mohave ground squirrel important areas.

Table IV.7-272
Plan-Wide Conservation Analysis for Mohave Ground Squirrel Important Areas – Alternative 4

Mohave Ground Squirrel Important Area Type	Available Lands (acres)	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Key Population Center	507,000	47,000	288,000	25,000	360,000	71%
Linkage	386,000	30,000	206,000	20,000	257,000	67%
Expansion Area	552,000	77,000	270,000	48,000	395,000	72%
Climate Change Extension	224,000	28,000	49,000	24,000	101,000	45%
Total	**1,669,000**	**181,000**	**814,000**	**117,000**	**1,113,000**	**67%**

[1] Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs).

[2] Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), which includes BLM and non-BLM inholdings within the designation.

[3] Conservation Planning Areas include areas of the reserve design from which reserve areas would be assembled on private and other public land.

Notes: Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1.2.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Within the Plan Area, critical habitat has been designated by the USFWS for the following Covered Species: desert tortoise, southwestern willow flycatcher, desert pupfish, and Parish's daisy. For desert tortoise, approximately 87% of the desert tortoise designated critical habitat would be conserved in Reserve Design Lands under Alternative 4, including 1,517,000 acres in existing conservation areas, 2,082,000 acres in BLM LUPA conservation designations, and 14,000 acres in Conservation Planning Areas. For southwestern willow flycatcher, approximately 63% of the southwestern willow flycatcher designated critical habitat would be conserved in Reserve Design Lands under Alternative 4, including 900 acres in existing conservation areas, 70 acres in BLM LUPA conservation designations, and 3,000 acres in Conservation Planning Areas. For desert pupfish, approximately 88% of the desert pupfish designated critical habitat would be conserved in Reserve Design Lands under Alternative 4, including 100 acres in existing conservation areas and 500 acres in BLM LUPA conservation designations. For Parish's daisy, approximately 70% of the Parish's daisy designated critical habitat would be conserved in Reserve Design Lands under Alternative 4, including 1,000 acres in BLM LUPA conservation designations.

Non-Covered Species Critical Habitat

Ten Non-Covered Species have Critical Habitat within the Plan Area. Table IV.7-273 shows the total amount of Critical Habitat and the amount within each Plan Wide reserve designation for Non-Covered Species. These reserve designations would be considered beneficial impacts for biological resources. All or a substantial portion of each species' Critical Habitat would be within the Reserve Design Lands and within the BLM conservation designations for most species. Critical Habitat for bighorn sheep is predominately within existing conservation and for arroyo toad it would mostly be within Conservation Planning Areas. Critical Habitat for the Pierson's milk-vetch is managed under the Imperial Sand Dunes Recreation Area Management Plan (RAMP), which provides protections for critical habitat within conservation areas and areas designated as closed to motorized (e.g. off-highway vehicle) use.

Table IV.7-273
Critical Habitat within Plan-Wide Reserve Design for Non-Covered Species – Alternative 4

Common Name	Acres of Critical Habitat within the DRECP	Acres of Critical Habitat in Existing Conservation	Acres of Critical Habitat in BLM Conservation Designations	Acres of Critical Habitat in Conservation Planning Areas	Acres in Conservation
Amargosa nitrophila	1,000	0	1,000	0	1,000
Amargosa vole	5,000	1,000	3,000	0	4,000
Arroyo toad	4,000	0	20	3,000	3,020

Table IV.7-273
Critical Habitat within Plan-Wide Reserve Design for Non-Covered Species – Alternative 4

Common Name	Acres of Critical Habitat within the DRECP	Acres of Critical Habitat in Existing Conservation	Acres of Critical Habitat in BLM Conservation Designations	Acres of Critical Habitat in Conservation Planning Areas	Acres in Conservation
Ash Meadows gumplant	300	0	300	0	300
Cushenbury buckwheat	600	0	600	0	600
Cushenbury milk-vetch	1,000	0	1,000	0	1,000
Cushenbury oxytheca	100	0	100	0	100
Lane Mountain milk-vetch	14,000	3,000	11,000	0	14,000
Pierson's milk-vetch[1]	3,400	3,000	0	400	3,400
Peninsular Bighorn sheep	47,000	41,000	400	300	41,700

[1] Pierson's milk-vetch are protected within areas designated as closed to motorized vehicles in the Imperial Sand Dunes RAMP. The ISDRA RAMP is not considered part of the DRECP decision area.

IV.7.3.6.2 Impacts of DRECP Land Use Plan Amendment on BLM Land: Alternative 4

This section addresses two components of effects of the BLM LUPA: the streamlined development of renewable energy and transmission on only BLM land under the LUPA, and the impacts of the amended land use plans themselves.

IV.7.3.6.2.1 Impacts from Renewable Energy and Transmission Development on BLM Land

On BLM lands under the LUPA, Alternative 4 includes DFAs (approximately 258,000 acres) and transmission corridors where approximately 56,000 acres of ground disturbance related impacts and operational impacts would occur.

Impact BR-1: Siting, construction, decommissioning, and operational activities would result in loss of native vegetation.

Table IV.7-274 shows the impacts to natural communities under Alternative 4 on BLM Land. An effects summary by general community is provided below in relation to the

Plan-wide effects analysis provided in Section IV.7.3.3.1.1. Appendix R2 provides a detailed analysis of natural community effects by ecoregion subarea.

California forest and woodlands

Overall, approximately 30 acres (0.1%) of California forest and woodlands would be impacted under Alternative 4 on BLM Land, about a third of the Plan-wide effects. Most of this impact would be from transmission effects in the Pinto Lucerne Valley and Eastern Slopes subarea, but some would also be from solar development in the West Mojave and Eastern Slopes subarea. The same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied on BLM Land with implementation of the BLM LUPA. This includes CMAs that address roosting covered bat species (AM-DFA-BAT-1), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 200 acres (1.2%) of chaparral and coastal scrubs would be impacted under Alternative 4 on BLM Land, which is approximately 10% of the Plan-wide effects to this general community. All of the impacts to chaparral and coastal scrubs would be in the Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas from solar, wind, and transmission development. The same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied on BLM Land with implementation of the BLM LUPA. This includes CMAs that address Covered Species (AM-DFA-BAT-1, AM-DFA-PLANT-1 through AM-DFA-PLANT-3, and AM-RES-BLM-PLANT-1), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

Desert conifer woodlands

Overall, approximately 300 acres (0.6%) of desert conifer woodlands would be impacted under Alternative 4 on BLM Land, which is approximately a third of the Plan-wide effects. Most of the impacts to desert conifer woodlands would be from solar development in the West Mojave and Eastern Slopes subarea. The same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied on BLM Land with implementation of the BLM LUPA. This includes CMAs that address roosting covered bat species (AM-DFA-BAT-1), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

Desert outcrop and badlands

Overall, approximately 10,000 acres (0.8%) of desert outcrop and badlands would be impacted under Alternative 4 on BLM Land, which constitutes the majority of the Plan-wide effects. Most of these impacts would be from solar development in the Cadiz Valley and Chocolate Mountains subarea. The same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied on BLM Land with implementation of the BLM LUPA. This includes CMAs that address breeding, nesting, or roosting species (AM-DFA-BAT-1), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

Desert scrubs

Overall, approximately 42,000 acres (0.6%) of desert scrubs would be impacted under Alternative 4 on BLM Land, which is less than half of the Plan-wide effects. Most of these impacts would occur in the Cadiz Valley and Chocolate Mountains subarea. The same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied on BLM Land with implementation of the BLM LUPA. These include avoidance, setbacks, and/or suitable habitat impact caps for flat-tailed horned lizard (AM-RES-RL-ICS-8 and AM-RES-RL-ICS-9 and AM-DFA-ICS-16), Agassiz's desert tortoise (AM-DFA-ICS-3 through AM-DFA-ICS-15, and AM-RES-RL-ICS-1 through AM-RES-RL-ICS-7), Mohave ground squirrel (AM-DFA-ICS-36 through AM-DFA-ICS-43 and AM-RES-BLM-ICS-14 through AM-RES-BLM-ICS-17), bat Covered Species (AM-DFA-BAT-1, AM-RES-RL-BAT-1, and AM-RES-RL-BAT-2), and plant Covered Species (AM-DFA-PLANT-1 through AM-DFA-PLANT-3, AM-RES-BLM-PLANT-1, and AM-RES-RL-PLANT-1 through AM-RES-RL-PLANT-3). Furthermore, soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) CMAs would be implemented that would help avoid and minimize these effects and compensation CMAs would offset the effect (COMP-1 and COMP-2).

Dunes

Application of the CMAs would require avoidance of dune communities to the maximum extent feasible in DFAs so there would be no impacts to dunes under BLM LUPA. In addition, the same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied on BLM Land with implementation of the BLM LUPA. This includes CMAs for dune avoidance and minimization (AM-DFA-DUNE-1 through AM-DFA-DUNE-3, AM-RES-BLM-DUNE-1, and AM-RES-BLM-DUNE-2) as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

Grasslands

Overall, approximately 400 acres (1.4%) of grasslands would be impacted under Alternative 4 on BLM Land, which is only about 5% of the Plan-wide effects. Impacts would occur in the Pinto Lucerne Valley and Eastern Slopes, Cadiz Valley and Chocolate Mountains, and West Mojave and Eastern Slopes subareas. The same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied on BLM Land with implementation of the BLM LUPA. This includes CMAs that address breeding, nesting, or roosting species (AM-DFA-AG-2), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

Riparian

Application of the CMAs would require avoidance of riparian communities to the maximum extent feasible in DFAs so there would be no impacts to riparian communities under BLM LUPA. In addition, the same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied on BLM Land with implementation of the BLM LUPA. This includes CMAs for avoidance and minimization from riparian habitat and the Covered Species associated with riparian habitat (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9) as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

Wetlands

Overall, approximately 3,000 acres (1.0%) of wetlands would be impacted under Alternative 4 on BLM Land, which is less than 30% of the Plan-wide effects. Impacts would be primarily to North American warm desert alkaline scrub and herb playa and wet flat and Southwestern North American salt basin and high marsh. Impacts would occur in the Cadiz Valley and Chocolate Mountains and West Mojave and Eastern Slopes subareas. The same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied on BLM Land with implementation of the BLM LUPA, including avoidance of Arid West freshwater emergent marsh and Californian warm temperate marsh/seep (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9) as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

Table IV.7-274
BLM LUPA Impact Analysis for Natural Communities – Alternative 4

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
California forest and woodland						
Californian broadleaf forest and woodland	11,000	10	0	0	0	10
Californian montane conifer forest	34,000	0	0	0	20	20
Chaparral and coastal scrub community (Cismontane scrub)						
Californian mesic chaparral	500	0	0	0	0	0
Californian pre-montane chaparral	300	0	0	0	0	0
Californian xeric chaparral	5,000	0	0	0	0	0
Central and south coastal California seral scrub	20	0	0	0	0	0
Central and South Coastal Californian coastal sage scrub	13,000	200	20	0	20	200
Western Mojave and Western Sonoran Desert borderland chaparral	200	0	0	0	0	0
Desert conifer woodlands						
Great Basin Pinyon - Juniper Woodland	50,000	200	30	0	20	300
Desert outcrop and badlands						
North American warm desert bedrock cliff and outcrop	1,203,000	7,000	500	200	3,000	10,000
Desert Scrub						
Arizonan upland Sonoran desert scrub	3,000	0	0	0	0	0
Intermontane deep or well-drained soil scrub	69,000	10	10	0	60	80
Intermontane seral shrubland	5,000	10	0	0	10	20
Inter-Mountain Dry Shrubland and Grassland	282,000	800	20	700	400	2,000
Intermountain Mountain Big Sagebrush Shrubland and steppe	24,000	0	0	0	0	0

Table IV.7-274
BLM LUPA Impact Analysis for Natural Communities – Alternative 4

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Lower Bajada and Fan Mojavean - Sonoran desert scrub	6,114,000	21,000	2,000	4,000	11,000	39,000
Mojave and Great Basin upper bajada and toeslope	406,000	60	30	0	100	200
Shadscale - saltbush cool semi-desert scrub	101,000	700	50	20	100	900
Southern Great Basin semi-desert grassland	50	0	0	0	0	0
Dunes						
North American warm desert dunes and sand flats	127,000	0	0	0	0	0
Grassland						
California Annual and Perennial Grassland	28,000	300	20	0	90	400
California annual forb/grass vegetation	1,000	50	0	0	0	50
Riparian						
Madrean Warm Semi-Desert Wash Woodland/Scrub	502,000	0	0	0	0	0
Mojavean semi-desert wash scrub	11,000	0	0	0	0	0
Sonoran-Coloradan semi-desert wash woodland/scrub	122,000	0	0	0	0	0
Southwestern North American riparian evergreen and deciduous woodland	400	0	0	0	0	0
Southwestern North American riparian/wash scrub	10,000	0	0	0	0	0
Madrean Warm Semi-Desert Wash Woodland/Scrub	502,000	0	0	0	0	0

Table IV.7-274
BLM LUPA Impact Analysis for Natural Communities – Alternative 4

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Wetland						
Arid West freshwater emergent marsh	10	0	0	0	0	0
Californian warm temperate marsh/seep	0	0	0	0	0	0
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	147,000	1,000	100	0	100	2,000
Open Water	700	0	0	0	0	0
Playa	26,000	0	0	0	0	0
Southwestern North American salt basin and high marsh	122,000	1,000	80	0	60	2,000
Wetland	100	10	0	0	0	20
Other Land Cover – Developed and Disturbed Areas						
Agriculture	6,000	40	0	10	60	100
Developed and Disturbed Areas	44,000	20	0	20	200	200
Not Mapped	800	0	0	0	0	0
Rural	3,000	10	0	20	10	40
Total	**9,432,858**	**33,339**	**2,567**	**5,396**	**8,143**	**49,444**

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

[2] Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Rare natural community alliances could be impacted under Alternative 4 on BLM lands, including impacts to Joshua tree woodland. CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection that would help avoid and minimize these effects on rare natural communities. Additionally, AM-DFA-ONC-1 and -2 would require inventorying and preserving or transplanting cactus, yuccas, and succulents. While the compensation CMAs

would offset the lost habitat acreage of these impacts, the compensation CMAs do not specifically require the replacement of or mitigation for specific rare natural community alliances. After application of the CMAs, impacts to rare natural communities from Alternative 4 would be adverse and would require mitigation.

Impact BR-2: Siting, construction, decommissioning, and operational activities would result in adverse effects to jurisdictional waters and wetlands.

Siting, construction, decommissioning, and operations of Covered Activities have the potential to result in adverse effects to federal or state jurisdictional waters and wetlands. In the Plan Area, jurisdictional waters and wetlands would likely include the riparian and wetland communities analyzed under Impact BR-1 and may also include other features including playas, seeps/springs, major rivers, and ephemeral drainage networks.

All Covered Activities would be required to comply with existing, applicable federal and state laws and regulations related to jurisdictional waters and wetlands. Additionally, all impacts to riparian communities would be avoided under Alternative 4 through application of the riparian CMAs including riparian setbacks. All impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep wetlands, would be avoided under Alternative 4 through application of the wetland CMAs, including wetland setbacks (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). Approximately 4,000 acres of other wetland communities would be impacted under Alternative 4. See the analysis for the loss of native vegetation provided under BR-1 for a discussion of these potential impacts. All or a portion of the estimated wetland impacts could result in adverse effects to jurisdictional waters and wetlands without compensation. Compensation CMAs would offset any impacts determined to be unavoidable.

Additionally, playas, seeps/springs, major rivers, and ephemeral drainage networks are waters and wetland features that provide hydrological functions and may be determined to be jurisdictional waters and wetlands. Adverse effects to these features would have the potential to impact jurisdictional waters and wetlands.

Playa

Approximately 1% (approximately 2,000 acres) of playa would be impacted by Covered Activities under Alternative 4 on BLM land. Impacts would be associated with solar (approximately 2,000 acres), with 200 acre of wind impacts and 100 acres of transmission impacts. Ecoregion subareas of potential impacts to playas include the Cadiz Valley and Chocolate Mountains, Kingston and Funeral Mountains, Mojave and Silurian Valley, Owens River Valley, Pinto Lucerne Valley and Eastern Slopes, Providence and Bullion Mountains, and West Mojave and Eastern Slopes subareas.

Avoidance of impacts to wetland communities including playas would benefit Covered Species that utilize these communities. In addition, application of species-specific CMAs would help avoid and minimize impacts to species associated with playas (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). CMAs would also require compliance with all applicable laws and regulations pertaining to wetlands and waters, including playas (AM-PW-9 and AM-LL-2). Compensation CMAs would offset impacts to these features (COMP-1 and COMP-2).

Seep/Spring

Seeps occur within DFAs and transmission corridors and potential impacts to seep/spring have the potential to occur under Alternative 4 on BLM land in the following ecoregion subareas: Owens River Valley and Pinto Lucerne Valley and Eastern Slopes. Impacts to seeps and springs would be adverse absent implementation of avoidance measures. Impacts to seep/spring locations and associated Covered Species and hydrological functions would be avoided through adherence to avoidance and minimization CMAs, including habitat assessments and avoidance of seeps with 0.25 mile setbacks (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). Compensation CMAs would offset any impacts determined to be unavoidable (COMP-1 and COMP-2).

Major Rivers

Under Alternative 4 on BLM land, there would no direct impacts to any of the four major rivers within the Plan Area – Amargosa, Colorado, Mojave, and Owens Rivers. However, development of the DFAs could indirectly impact these resources through alteration of hydrology. Riparian CMAs would require avoidance of these features with setbacks (AM-DFA-RIPWET-1).

Ephemeral Drainages

Ephemeral drainages occur throughout the Plan Area, and some of these features could be determined to state or federal jurisdictional waters. Impacts to ephemeral drainages would likely occur from Covered Activities. Application of riparian avoidance CMAs (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9) would avoid and minimize impacts to a portion of the ephemeral drainages within DFAs. Additionally, all Covered Activities would be required to comply with existing, applicable federal and state laws and regulations related to jurisdictional waters and wetlands.

Impact BR-3: Siting, construction, decommissioning, and operational activities would result in degradation of vegetation.

Siting, construction, and operational Covered Activities would result in the degradation of vegetation through the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants. The degree to which these factors contribute to the degradation of vegetation corresponds to the distribution of Covered Activities on BLM Land that would result in dust, fire, and introduction of invasive plants or that would use dust suppressants and implement fire management. The propensity for vegetation to be at risk of degradation was determined by the overlap between natural community models and the likely distribution of Covered Activities across subareas on BLM Land.

Based on the planned renewable energy capacity, the greatest amount of terrestrial operational impacts on BLM Land would occur in the Cadiz Valley and Chocolate Mountains subarea, as shown in Table IV.7-275. As a result, this subarea would have the greatest potential to degrade vegetation as a result in the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants.

Table IV.7-275
BLM LUPA Terrestrial Operational Impacts – Alternative 4

Ecoregion Subarea	Solar Impact[1] (acres)	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Cadiz Valley and Chocolate Mountains	27,000	10,000	-	12,000	49,000
Imperial Borrego Valley	2,000	-	4,000	1,000	7,000
Kingston and Funeral Mountains	-	-	-	-	-
Mojave and Silurian Valley	-	-	-	300	300
Owens River Valley	800	-	1,000	500	2,300
Panamint Death Valley	700	-	-	200	900
Pinto Lucerne Valley and Eastern Slopes	200	600	-	800	1,600
Piute Valley and Sacramento Mountains	-	-	-	-	-
Providence and Bullion Mountains	200	-	-	200	400

Table IV.7-275
BLM LUPA Terrestrial Operational Impacts – Alternative 4

Ecoregion Subarea	Solar Impact[1] (acres)	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
West Mojave and Eastern Slopes	3,000	800	-	200	4,000
Total	**33,000**	**12,000**	**5,000**	**15,000**	**65,000**

[1] Solar impacts include ground-mounted distributed generation.

Notes: Terrestrial operational impacts collectively refers to vegetation degradation impacts (BR-3) from dust, dust suppressants, fire, fire management, and invasive plants and wildlife impacts (BR-4) from creation of noise, predator avoidance behavior, lighting and glare. For the purposes of analysis, terrestrial operational impacts were quantified using the project area extent for solar and geothermal, using 25% of the project area for wind, and the right-of-way area for transmission.

Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation, short-term and long-term wind (excluding project area impacts), geothermal project area, and transmission impacts. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Dust and Dust Suppressants

Natural communities, and in particular natural communities containing Mojave desert shrubs, are susceptible to vegetation degradation from dust. Impacts to these natural communities would mostly occur in the Cadiz Valley and Chocolate Mountains subarea. Plant Covered Species, that could also experience vegetation degradation from dust, would mainly be impacted by Covered Activities in the West Mojave and Eastern Slopes subarea, which contains most of the impacts to plant Covered Species habitat on BLM Land. Therefore, considering the distribution of Covered Activities that would cause dust as well as the sensitive natural communities and plant Covered Species the Cadiz Valley and Chocolate Mountains and West Mojave and Eastern Slopes and Eastern Slopes subareas would experience the greatest magnitude of vegetation degradation resulting from dust.

The application of dust suppressants is a common management practice, a Covered Activity under the Plan, and has been shown to effectively reduce dust. Dust-related degradation of vegetation would be further minimized with the incorporation of avoidance and minimization CMAs. The Plan-wide avoidance and minimization CMAs would generally identify vegetation in the project area (AM-PW-1), utilize standard practices to minimize the amount of exposed soils (AM-PW-14) and reduce dust caused by soil erosion (AM-PW-10). Additionally, Alternative 4 would implement CMAs that would identify and protect or salvage specific plant species, minimizing their exposure to dust. Setbacks and suitable

habitat impact caps would also be implemented for plant Covered Species in DFAs and in the reserve design envelope (AM-DFA-PLANT-1 through AM-DFA-PLANT-3).

Riparian and wetland natural communities would be susceptible to the adverse effects of dust suppressants including chemical and physical changes to an ecosystem, alter hydrological function of soils and drainage areas, and increase pollutant loads in surface water. These impacts occur in all of the same subareas as the Plan-wide analysis, but would impact fewer acres in each subarea. The largest amount of impacts from Covered Activities, which corresponds to the potential greatest magnitude of vegetation degradation from adverse dust suppressant effects, would be located in the West Mojave and Eastern Slopes and Cadiz Valley and Chocolate Mountains subareas. Plant Covered Species that could also experience vegetation degradation from dust suppressants, would mainly be impacted by Covered Activities in the West Mojave and Eastern Slopes subarea.

Avoidance and minimization CMAs implemented as part of Alternative 4, including AM-PW-9 and AM-PW-10, would utilize standard practices to reduce erosion and runoff of dust suppressant into sensitive vegetation. Setbacks and avoidance requirements for all riparian natural communities and some wetland natural communities that would be implemented as part of the CMAs would minimize potential adverse effects of dust suppressants on these communities (AM-DFA-RIPWET-1).

Fire and Fire Management

Covered Activities could result in increased flammable invasive annual plants and anthropogenic ignitions of fires that can cause conversion of natural communities and degrade vegetation. Desert scrub natural communities are naturally slow to recover from fire episodes, which can lead to permanent community type conversion. On BLM Land, the impacts to desert scrub natural communities would mainly occur within the Cadiz Valley and Chocolate Mountains subarea.

Construction and maintenance of fire breaks and other fire management techniques would typically result in the removal of vegetation from woodland, chaparral, and grassland natural communities. However, fire management in the form of fuels management, may benefit natural habitats if conducted in areas of non-native, invasive, species infestations (e.g. salt ceder hot spots). California forest and woodlands, chaparral natural communities, and grassland natural communities would be impacted on BLM Land, under Alternative 4. These impacts from Covered Activities, which correspond to the amount of potential vegetation degradation resulting from fire and fire management, would predominantly occur in the West Mojave and Eastern Slopes subarea, and to a lesser extent in the Pinto Lucerne Valley and Eastern Slopes as well as the Cadiz Valley and Chocolate Mountains subareas. Under Alternative 4 avoidance and minimization CMAs would be implemented to reduce the

potential adverse effects of fire and fire management, including AM-PW-12 that would require projects to minimize the amount of vegetation clearing and fuel modification.

Invasive Plants

The adverse effects of invasive plants, include increasing the fuel load and the frequency of fires in plant communities and allelopathic effects that hinder the growth or establishment of other plant species. The natural communities and plant Covered Species found on BLM Land are generally at risk of adverse effects from the introduction of invasive plants. Therefore, the most vegetation degradation caused by introduction of invasive plants would occur in the West Mojave and Eastern Slopes as well as the Cadiz Valley and Chocolate Mountains subareas. Plant Covered Species found on BLM Land would also experience potential vegetation degradation as a result of Covered Activities. The West Mojave and Eastern Slopes subarea would have the largest amount of impacts to plant Covered Species on BLM Land.

Under Alternative 4 avoidance and minimization CMAs would be implemented to reduce vegetation degradation from invasive plants, including AM-PW-7 that would ensure the timely restoration of temporarily disturbed areas that could otherwise promote invasive plants. Additional CMAs would use standard practices to control weeds and invasive plants (AM-PW-11) and require the responsible use of herbicides to minimize potential vegetation degradation (AM-PW-15) for all Covered Activities.

Impact BR-4: Siting, construction, decommissioning, and operational activities would result in loss of listed and sensitive plants; disturbance, injury, and mortality of listed and sensitive wildlife; and habitat for listed and sensitive plants and wildlife.

Impact BR-4 described at the Plan-wide level provides an impact analysis for Covered Species habitat by ecoregion subarea, specific Covered Species impact analyses, an indirect and terrestrial operational impact analysis for Covered Species, and a Non-Covered Species impact analysis. The following provides an impact analysis for Covered Species on BLM-administered lands. Most of the impacts to plant and wildlife species and their habitat under the BLM LUPA would occur in the Imperial Borrego Valley, West Mojave and Eastern Slopes, and Cadiz Valley and Chocolate Mountains subareas.

Covered Species Habitat Impact Analysis by Ecoregion Subarea

West Mojave and Eastern Slopes Ecoregion Subarea

Renewable energy development in the West Mojave and Eastern Slopes subarea would mostly be from solar development, but would also include impacts from wind and transmission development. Typical impacts from these Covered Activities on plant and

wildlife species and their habitat is described in Section IV.7.2. Suitable habitat for amphibians and reptiles would be impacted in this subarea, including Agassiz's desert tortoise and Tehachapi slender salamander. CMAs require avoidance of and setbacks from riparian and wetland habitat (AM-DFA-RIPWET-1) would further avoid and minimize the impacts on Tehachapi slender salamander to less than the acreage reported in Table IV.7-276. Compensation CMAs would offset habitat loss for these species.

There are impacts to suitable habitat for several bird Covered Species in the West Mojave and Eastern Slopes subarea, including Bendire's thrasher, burrowing owl, California condor, golden eagle, mountain plover, Swainson's hawk, and tricolored blackbird. CMAs requiring avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further avoid and minimize the impacts on tricolored blackbird to less than the acreage reported in Table IV.7-276. Additionally, the CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs (AM-DFA-AG-2). Compensation CMAs would offset habitat loss for these species.

Suitable habitat for bighorn sheep, desert kit fox, Mohave ground squirrel, pallid bat, and Townsend's big-eared bat would be impacted in this subarea. The siting of the DFAs under the BLM LUPA largely avoid habitat for bighorn sheep. The CMAs require avoidance of and setbacks from riparian and wetland habitat (AM-DFA-RIPWET-1) that would further reduce the impacts on these habitats used by Mohave ground squirrel, pallid bat, and Townsend's big-eared bat to less than the acreage reported in Table IV.7-276. Compensation CMAs would offset habitat loss for these species.

Suitable habitat for the following plant species would be impacted in the West Mojave and Eastern Slopes subarea: alkali mariposa-lily, Bakersfield cactus, Barstow woolly sunflower, desert cymopterus, Mojave monkeyflower, and Mojave tarplant. Although modeled suitable habitat for these species may be impacted by Covered Activities in this subarea, the CMAs requiring surveys for plant Covered Species for all Covered Activities, and the CMAs requiring avoidance of and setbacks from occupied habitat (AM-DFA-PLANT-1 through AM-DFA-PLANT-3) would further reduce the impacts on these species to less than the acreage reported in Table IV.7-276. Compensation CMAs would offset habitat loss for these species.

Cadiz Valley and Chocolate Mountains Ecoregion Subarea

Renewable energy development within the Cadiz Valley and Chocolate Mountains subarea would be primarily from solar energy development, but would also include impacts from wind and transmission. The Cadiz Valley and Chocolate Mountains subarea provides suitable habitat for amphibians and reptiles, including Agassiz's desert tortoise and Mojave fringe-toed lizard that would be impacted. The siting of the DFAs under the BLM LUPA largely avoid habitat for Mojave fringe-toed lizard, and CMAs requiring avoidance of and setbacks from dune habitat (AM-DFA-DUNE-1 through AM-DFA-DUNE-3) would further

avoid and minimize the impacts on this species to less than the acreage reported in Table IV.7-276. Compensation CMAs would offset habitat loss for these species.

Impacts would occur to the following covered bird species in this subarea: Bendire's thrasher, burrowing owl, Gila woodpecker, golden eagle, greater sandhill crane, and mountain plover. In addition, compensation CMAs would offset habitat loss for these species.

Suitable habitat for the following Covered mammals would be impacted in the Cadiz Valley and Chocolate Mountains subarea: bighorn sheep, California leaf-nosed bat, pallid bat, and Townsend's big-eared bat. Suitable habitat for burro deer and desert kit fox (Planning Species) would also be impacted. The siting of the DFAs under the BLM LUPA largely avoid habitat for bighorn sheep. The CMAs require avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further reduce the impacts on these habitats used by California leaf-nosed bat, pallid bat, and Townsend's big-eared bat to less than the acreage reported in Table IV.7-276. Compensation CMAs would offset habitat loss for these species.

Imperial Borrego Valley Ecoregion Subarea

Renewable energy development within the Imperial Borrego Valley subarea would be primarily from solar energy development, but would also include impacts from wind, geothermal, and transmission development. The Imperial Borrego Valley subarea provides suitable habitat for Agassiz's desert tortoise and flat-tailed horned lizard that would be impacted. The siting of the DFAs under the BLM LUPA largely avoid habitat for flat-tailed horned lizard, and CMAs requiring avoidance of and setbacks from dune habitat (AM-DFA-DUNE-1 through AM-DFA-DUNE-3) would further avoid and minimize the impacts on this species to less than the acreage reported in Table IV.7-276.

Impacts would occur to suitable habitat for the following covered bird species in this subarea: Bendire's thrasher, burrowing owl, California black rail, Gila woodpecker, golden eagle (foraging), greater sandhill crane, mountain plover, southwestern willow flycatcher, and Swainson's hawk. CMAs require avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further avoid and minimize the impacts on southwestern willow flycatcher and California black rail to less than the acreage reported in Table IV.7-276. Additionally, the CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs (AM-DFA-AG-2).

Only minimal impacts (about 60 acres) would occur to bighorn sheep mountain habitat in this subarea. Impacts to suitable habitat for other covered mammals species would occur for California leaf-nosed bat, pallid bat, and Townsend's big-eared bat. Impacts to suitable habitat for desert kit fox would also occur in this subarea. The siting of the DFAs under the BLM LUPA largely avoid habitat for bighorn sheep. The CMAs require avoidance of and

setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further reduce the impacts on these habitats used by California leaf-nosed bat, pallid bat, and Townsend's big-eared bat to less than the acreage reported in Table IV.7-276.

Table IV.7-276
BLM LUPA Impact Analysis for Covered Species Habitat – Alternative 4

Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Amphibian/Reptile						
Agassiz's desert tortoise	5,799,000	7,000	600	1,000	5,000	13,000
Flat-tailed horned lizard	428,000	2,000	-	4,000	1,000	7,000
Mojave fringe-toed lizard	731,000	10,000	800	-	4,000	15,000
Tehachapi slender salamander	7,000	20	-	-	-	20
Bird						
Bendire's thrasher	773,000	400	100	30	200	800
Burrowing owl	1,707,000	8,000	600	3,000	3,000	15,000
California black rail	31,000	100	-	200	60	400
California condor	242,000	2,000	100	100	100	2,000
Gila woodpecker	38,000	40	-	-	10	50
Golden eagle–foraging	6,216,000	15,000	1,000	800	7,000	25,000
Golden eagle–nesting	2,421,000	900	80	20	2,000	3,000
Greater sandhill crane	3,000	20	-	10	20	50
Least Bell's vireo	69,000	10	-	10	10	20
Mountain plover	7,000	200	10	-	40	200
Southwestern willow flycatcher	46,000	500	-	700	200	1,000
Swainson's hawk	112,000	2,000	100	400	200	3,000
Tricolored blackbird	13,000	200	10	-	20	200
Western yellow-billed cuckoo	19,000	-	-	-	-	10
Yuma clapper rail	5,000	-	-	-	-	-
Fish						
Desert pupfish	500	-	-	-	-	-
Owens pupfish	4,000	-	-	-	20	20
Owens tui chub	4,000	-	-	-	20	20

Table IV.7-276
BLM LUPA Impact Analysis for Covered Species Habitat – Alternative 4

Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Mammal						
Bighorn sheep – inter-mountain habitat	2,243,000	3,000	200	100	1,000	4,000
Bighorn sheep – mountain habitat	3,568,000	200	80	-	2,000	2,000
California leaf-nosed bat	4,444,000	21,000	2,000	2,000	10,000	35,000
Mohave ground squirrel	999,000	3,000	200	1,000	700	5,000
Pallid bat	8,943,000	25,000	2,000	5,000	14,000	47,000
Townsend's big-eared bat	7,599,000	28,000	2,000	4,000	13,000	47,000
Plant						
Alkali mariposa-lily	2,000	20	10	-	-	40
Bakersfield cactus	77,000	600	50	-	-	600
Barstow woolly sunflower	72,000	-	-	-	10	10
Desert cymopterus	67,000	30	-	-	10	30
Little San Bernardino Mountains linanthus	80,000	10	10	-	10	30
Mojave monkeyflower	116,000	30	-	-	90	100
Mojave tarplant	136,000	200	10	60	80	300
Owens Valley checkerbloom	55,000	10	-	-	70	80
Parish's daisy	85,000	90	80	-	50	200
Triple-ribbed milk-vetch	4,000	-	-	-	-	-

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

[2] Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Specific Covered Species Impact Analyses

For Agassiz's desert tortoise, desert tortoise important areas were identified that include tortoise conservation areas (TCAs), desert tortoise linkages, and desert tortoise high priority habitat (see desert tortoise BGOs in Appendix C). Table IV.7-277 provides an impact analysis for these desert tortoise important areas in the BLM LUPA area, organized by desert tortoise Recovery Units: Colorado Desert, Eastern Mojave, and Western Mojave. Within the Colorado Desert Recovery Unit, approximately 13,000 acres of TCAs, linkage habitat, and high priority habitat would be impacted under Alternative 4. Within the Eastern Mojave Recovery Unit, no habitat would be impacted under Alternative 4. Within the Western Mojave Recovery Unit, approximately 1,000 acres of TCAs and linkage habitat would be impacted under Alternative 4. CMAs would require avoidance of TCAs, except for impacts associated with transmission or impacts in disturbed portions of TCAs. Additionally, the CMAs would prohibit impacts that affect the viability of desert tortoise linkages (AM-DFA-ICS-1 and AM-DFA-ICS-3 through 15). Compensation CMAs would be required for impacts to desert tortoise, including desert tortoise important areas. The DRECP Plan-Wide Reserve Design Envelope for Alternative 4 was developed, in part, to conserve and avoid impacts to habitat linkages and wildlife movement, including the desert linkage network; however, the inclusion of DRECP Variance Lands in this alternative and the uncertainty of future management of these lands undermines the strength of the DRECP Plan-Wide Reserve Design Envelope for Alternative 4. Under Alternative 4, the designated DRECP Variance Lands have the potential to undermine the integrity and long-term conservation value of the conservation strategy for desert tortoise.

Table IV.7-277
BLM LUPA Impact Analysis for Desert Tortoise Important Areas – Alternative 4

Recovery Unit	Desert Tortoise Important Areas	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Colorado Desert	High Priority Habitat	354,000	3,000	300	-	90	4,000
	Linkage	406,000	800	70	-	20	900
	TCA	1,728,000	600	50	-	8,000	8,000
Colorado Desert Total		*2,488,000*	*5,000*	*400*	-	*8,000*	*13,000*
Eastern Mojave	Linkage	728,000	-	-	-	-	-
	TCA	239,000	-	-	-	-	-
Eastern Mojave Total		*967,000*	-	-	-	-	-
Western Mojave	Linkage	796,000	300	50	-	200	600
	TCA	964,000	200	20	-	400	700

Table IV.7-277
BLM LUPA Impact Analysis for Desert Tortoise Important Areas – Alternative 4

Recovery Unit	Desert Tortoise Important Areas	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Western Mojave Total		*1,759,000*	*500*	*70*	-	***600***	*1,000*
Total		**5,215,000**	**5,000**	**500**	-	**9,000**	**14,000**

1 Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
2 Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For golden eagle, a territory-based analysis was conducted (see methods and results in the Chapter IV.7 portion of Appendix R2). Using the golden eagle nest database, golden eagle territories were identified and individually buffered by 1 mile (representing breeding areas around known nests) and 4 miles (representing use areas around known nests). A total of 146 territories occur wholly or partially within the BLM LUPA area. Under Alternative 4, 30 territories have DFAs or transmission corridors within 1 mile of a nest. Implementation of the CMAs for golden eagles (AM-DFA-ICS-2) would prohibit siting or construction of Covered Activities within 1 mile of an active golden eagle nest; therefore, impacts within 1 mile of these golden eagle territories would be avoided. Under Alternative 4, 69 territories have DFAs or transmission corridors within 4 miles of nest, and the use area of these territories could be impacted through harassment and reduced foraging opportunities by Covered Activities depending of the siting of specific projects. The CMAs for golden eagles (Section II.3.1.2.5) and the approach to golden eagles (see Appendix H) describes how the impact to golden eagles would be avoided, minimized, and compensated. Based on the 2013 analysis, no more than 15 golden eagles per year in 2014 would be allowed to be taken within the Plan Area, which would be reassessed annually.

For bighorn sheep, bighorn sheep mountain habitat and intermountain (linkage) habitat have been identified in the Plan Area. Under Alternative 4 on BLM land, approximately 2,000 acres of mountain habitat and 4,000 acres of intermountain habitat would be impacted. Alternative 4 identified DFAs that largely avoid impacts to bighorn sheep mountain and intermountain habitat, and avoidance, minimization, and compensation CMAs have been developed to offset the loss of habitat for bighorn sheep.

For Mohave ground squirrel, Mohave ground squirrel important areas were identified that include key population centers, linkages, expansion areas, and climate change extension areas (see Mohave ground squirrel BGOs in Appendix C). Table IV.7-278 provides an impact analysis for these Mohave ground squirrel important areas in the BLM LUPA area. Approximately 1,000 acres of impact to key population centers would occur in Alternative 4 and approximately 100 acres of impact would occur in climate change extension areas. A total of approximately 1,000 acres of impact to linkage and approximately 1,000 acres of impact to expansion areas would occur under Alternative 4. The CMAs would prohibit impacts that affect the viability of linkages. Compensation CMAs would be required for impacts to Mohave ground squirrel, including Mohave ground squirrel important areas.

Table IV.7-278
BLM LUPA Impact Analysis for Mohave Ground Squirrel Important Areas – Alternative 4

Mohave Ground Squirrel Important Area Type	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Key Population Center	299,000	700	-	100	300	1,000
Linkage	280,000	400	-	600	400	1,000
Expansion Area	282,000	400	10	400	80	1,000
Climate Change Extension	92,000	-	-	-	100	100
Total	**954,000**	**2,000**	**10**	**1,000**	**800**	**4,000**

1 Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
2 Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Within the Plan Area, critical habitat has been designated by the USFWS for the following Covered Species: desert tortoise, southwestern willow flycatcher, desert pupfish, and Parish's daisy. For desert tortoise, approximately 9,000 acres of impact designated critical habitat would result from the development of Covered Activities on BLM-administered lands under Alternative 4 located in the Chuckwalla, Fremont-Kramer, Ord-Rodman, and Superior-Cronese critical habitat units. Under Alternative 4, no impacts to critical habitat designated for southwestern willow flycatcher, desert pupfish, or Parish's daisy would occur from the development of Covered Activities on BLM-administered lands.

Indirect and Terrestrial Operational Impact Analysis

Siting, construction, and operational Covered Activities could result in the potential disturbance, injury, and mortality of listed and sensitive wildlife from noise, predator avoidance behavior, as well as light and glare. The degree to which these factors contribute to the disturbance of sensitive wildlife corresponds to the distribution of Covered Activities on BLM Land that would result in noise, predator avoidance behavior, or light and glare. Based on the planned renewable energy capacity on BLM Land, most of the terrestrial operational impacts would occur in the Cadiz Valley and Chocolate Mountains subarea, as shown in Table IV.7-275. The Imperial Borrego Valley and West Mojave and Eastern Slopes subareas would also prevalent amounts of terrestrial operational impacts on BLM Land. As a result, these subareas would have the greatest potential to disturbance of sensitive wildlife from noise, predator avoidance behavior, as well as light and glare.

Noise

Noise can cause physical damage to wildlife as well as behavioral changes in habitat use, activity patterns, reproduction, and foraging. Bird Covered Species, in particular during the nesting seasons, are expected to be sensitive to adverse noise effects. The largest amount of impacts to bird Covered Species modeled habitat on BLM Land would be located in the Cadiz Valley and Chocolate Mountains subarea, which would experience approximately 55% of these impacts. Small mammals, such as the Mohave ground squirrel, and reptiles, such the Mojave fringe-toed lizard and flat-tailed horned lizard, could experience increased predation from noise hindering their ability to detect predators. Overall, impacts on BLM Land to the habitat for these Covered Species would mostly occur in the West Mojave and Eastern Slopes and Imperial Borrego Valley subareas, and to a lesser extent in the Cadiz Valley and Chocolate Mountains subarea. As such, the disturbance of wildlife from noise would predominantly occur in the West Mojave and Eastern Slopes, Imperial Borrego Valley, and Cadiz Valley and Chocolate Mountains subareas.

The disturbance and injury of wildlife from noise-related effects would be minimized through the implementation of avoidance and minimization CMAs under Alternative 4. The CMA AM-PW-13 would reduce noise generated from Covered Activities using standard practices while other CMAs that would avoid and setback Covered Activities from noise-sensitive wildlife including seasonal setbacks for nesting birds; setbacks from riparian and wetland habitat benefitting bids, amphibians, and small mammals; and avoidance of Mohave ground squirrel's during operations (AM-DFA-RIPWET-1, AM-DFA-RIPWET-5, and AM-DFA-ICS-36).

Predator Avoidance Behavior

The effects of predator avoidance behavior can occur for some wildlife in response to human activities during siting, construction, and operations. Different wildlife species may have varying sensitivities to predator avoidance behavior and may experiences different magnitudes of responses to Covered Activities. However, Covered Activities are expected to generally result in predator avoidance and other behavioral changes in most wildlife species that are spread throughout BLM Land. Therefore, the most disturbance of wildlife from predator avoidance behavior would occur in the Cadiz Valley and Chocolate Mountains subarea, where most of the terrestrial operational impacts on BLM Land are anticipated.

Under Alternative 4, avoidance and minimization CMAs for siting Covered Activities away from sensitive wildlife habitat would be implemented for riparian and wetland habitat, wildlife species that inhabit agricultural lands, and for particular species such as the Mohave ground squirrel (AM-DFA-RIPWET-1, AM-DFA-RIPWET-5, AM-DFA-AG-2, and AM-DFA-ICS-36). Additional CMAs would inform workers of actions that could potentially affect wildlife behavior and restrict activities that could disturb wildlife and their access to water and foraging habitat (AM-PW-5, AM-PW-13, and AM-RES-RL-DUNE-2). Further seasonal restrictions would also be implemented for recreational activities that might affect Bighorn sheep in the reserve design envelope (AM-RES-BLM-ICS-11). The potential disturbance of wildlife from predator avoidance behavior caused by siting, construction, and operational Covered Activities would be minimized by these measures, which are applicable on BLM Land.

Light and Glare

Exposure of wildlife to light and glare can alter wildlife behavior including foraging, migration, and breeding. Solar projects would produce increased levels of glare due to the large amount of reflective panel or heliostat surfaces and would have greater effects on wildlife than other renewable energy technologies. Potential adverse effects associated with light and glare from solar projects, including solar flux and bird collisions from the lake effect are analyzed in BR-9. As described above, most of the terrestrial operational impacts on BLM Land resulting from development of all technology types of renewable energy would occur in the Cadiz Valley and Chocolate Mountains subarea. The Imperial Borrego Valley and West Mojave and Eastern Slopes subareas would also experience prevalent amounts of terrestrial operational impacts on BLM Land. As a result, these subareas would have the greatest potential to disturbance of sensitive wildlife from noise, predator avoidance behavior, as well as light and glare. Similarly, impacts from solar projects on BLM Land would primarily occur in the Cadiz Valley and Chocolate Mountains subarea.

Bats and other diurnal predators may exploit night lighting that increases prey detectability, but would also be attracted to areas of greater development that increase potential hazards such as collision. Impacts to habitat for bats would as a result of Covered Activities on BLM Land would

mainly be located in the Cadiz Valley and Chocolate Mountains subarea. Migratory birds that fly during the night may be affected by aviation safety lighting. For bird Covered Species the Cadiz Valley and Chocolate Mountains subarea would be primarily affected, containing most of the impacts to bird Covered Species habitat on BLM Land. Therefore, considering the distribution solar and other renewable energy technologies and impacts on modeled habitat for species sensitive light and glare the greatest wildlife disturbance is anticipated to occur in the Cadiz Valley and Chocolate Mountains subarea.

Alternative 4 would implement avoidance and minimization CMAs on BLM Land specifically intended to minimize effects of lighting and glare including AM-PW-14, which would implement standard practices for shielding and reducing the use of lights, as well as AM-DFA-RIPWET-4, which specifically restricts lighting within one mile of riparian or wetland vegetation. Other CMAs applicable to BLM Land would implement setbacks for riparian and wetland habitat, wildlife species that inhabit agricultural lands, and for smaller mammals, which would minimize their exposure to light and glare from Covered Activities (AM-DFA-RIPWET-1, AM-DFA-RIPWET-5, and AM-DFA-AG-2).

Non-Covered Species

Potential impacts to Non-Covered Species on BLM Land were analyzed as described in Section IV.7.3.2.1. Table IV.7-279 provides an estimation of the impacts to natural communities associated with Non-Covered Species. While estimation of impacts to natural communities likely overestimates the potential impacts to Non-Covered Species habitats, it provides a general range of level of impact.

Impacts to the dune community, riparian communities, arid west freshwater emergent marsh, and Californian warm temperate marsh/seep would be avoided through implementation of CMAs, so impacts to potential habitat for each of these species is likely greater than would actually occur. For some species, impacts would be minimized through avoidance of the specific natural communities required for those species, e.g. dune-, spring-, or cave-restricted invertebrates, or riparian-obligate bird species. The total impact to potential habitat across all technology types is less than 1%, with the exception of the grassland community at approximately 1.8% and within the agriculture/rural land cover areas at approximately 2%.

Critical habitat for the federally-listed Non-Covered Species would essentially be avoided across all renewable energy types.

The results of impacts on Non-Covered Species from the creation of noise, predator avoidance behavior, and light and glare would be similar to those described for the Covered Species.

Table IV.7-279
BLM LUPA Impact Analysis for Natural Communities and Associated Non-Covered Species – Preferred Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
California forest and woodland/ Desert conifer woodlands	Coast horned lizard, grey vireo, loggerhead shrike, yellow warbler, American badger, bighorn sheep, fringed myotis, hoary bat, long-eared myotis, pocketed free-tailed bat, spotted bat, Tehachapi pocket mouse, western mastiff bat, western small-footed myotis, Amargosa beardtongue, Charlotte's phacelia, creamy blazing star, Cushenbury buckwheat, Cushenbury milk-vetch, Cushenbury oxytheca, Kern buckwheat, Piute Mountains jewel-flower, purple-nerve cymopterus, San Bernardino Mountains dudleya, short-joint beavertail cactus, Spanish needle onion, Tracy's eriastrum, Cushenbury buckwheat	95,000	200	30	0	50	280	0.3%
Desert Scrub/ Chaparral Communities	Arroyo toad, banded gila monster, Coast horned lizard, Colorado Desert fringe-toed lizard, Couch's spadefoot, rosy boa, bald eagle, bank swallow, Crissal thrasher, Ferruginous hawk, gilded flicker, grey vireo, Le	7,023,000	23,000	2,000	5,000	12,000	42,000	0.6%

Table IV.7-279
BLM LUPA Impact Analysis for Natural Communities and Associated Non-Covered Species – Preferred Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	Conte's thrasher, loggerhead shrike, long-eared owl, Lucy's warbler, northern harrier, yellow warbler, American badger, Arizona myotis, big free-tailed bat, bighorn sheep, cave myotis, fringed myotis, hoary bat, long-eared myotis, Palm Springs pocket mouse, pocketed free-tailed bat, spotted bat, Tehachapi pocket mouse, western mastiff bat, western small-footed myotis, western yellow bat, yellow-eared pocket mouse, Yuma myotis, Algodones Dunes sunflower, Ash Meadows gum plant, Amargosa beardtongue, bare- stem larkspur, Charlotte's phacelia, Cima milk-vetch, Coachella Valley milk-vetch, creamy blazing star, Cushenbury buckwheat, Cushenbury milk-vetch, Cushenbury oxytheca, desert pincushion, Emory's crucifixion-thorn, flat-seeded spurge, forked buckwheat, Harwood's eriastrum, Harwood's milkvetch, Inyo County star-tulip, Kelso Creek							

Table IV.7-279
BLM LUPA Impact Analysis for Natural Communities and Associated Non-Covered Species – Preferred Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	monkeyflower, Kern buckwheat, Las Animas colubrina, Lane Mountain Milk-Vetch, Mojave Desert plum, Mojave milkweed, Munz's Cholla, nine-awned pappus grass, Orcutt's woody aster, Orocopia sage, Parish's club cholla, Pierson's milk-vetch, pink fairy-duster, Piute Mountains jewel-flower, purple-nerve cymopterus, Red Rock poppy, Red Rock tarplant, Robinson's monardella, Rusby's desert-mallow, sand food, Sodaville milk-vetch, short-joint beavertail cactus, Spanish needle onion, Thorne's buckwheat, Tracy's eriastrum, Utah beardtongue, white bear poppy, White-margined beardstongue, Wiggin's croton, Flat-seeded spurge, Parish's phacelia, Parish's alkali grass							
Dunes[3]/ Desert Outcrop and Badlands	Banded gila monster, barefoot gecko, Coast horned lizard, Colorado Desert fringe-toed lizard, Couch's spadefoot, rosy boa, bald eagle, bank swallow, Le	1,330,000	7,000	500	200	3,000	10,700	0.8%

Table IV.7-279
BLM LUPA Impact Analysis for Natural Communities and Associated Non-Covered Species – Preferred Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	Conte's thrasher, loggerhead shrike, long-eared owl, northern harrier, Amargosa vole, big free-tailed bat, bighorn sheep, cave myotis, bat, spotted bat, western mastiff bat, Yuma myotis, Algodones Dunes sunflower, Ash Meadows gum plant, Amargosa beardtongue, Amargosa niterwort, Charlotte's phacelia, Cima milk-vetch, Coachella Valley milk-vetch, creamy blazing star, desert pincushion, Emory's crucifixion-thorn, flat-seeded spurge, forked buckwheat, Harwood's eriastrum, Harwood's milkvetch, Inyo County star-tulip, Las Animas colubrina, Mojave Desert plum, Mojave milkweed, nine-awned pappus grass, Orcutt's woody aster, Orocopia sage, Palmer's jackass clover, Parish's club cholla, Pierson's milk-vetch, pink fairy-duster, purple-nerve cymopterus, Red Rock poppy, Red Rock tarplant, Robinson's monardella, Rusby's desert-mallow, sand food,							

Table IV.7-279
BLM LUPA Impact Analysis for Natural Communities and Associated Non-Covered Species – Preferred Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	Spanish needle onion, Thorne's buckwheat, Utah beardtongue, white bear poppy, Wiggin's croton, Palmer's jackass clover, white-margined beardtongue, flat-seeded spurge							
Grassland	Coast horned lizard, American peregrine falcon, bank swallow, Ferruginous hawk, long-eared owl, northern harrier, white-tailed kite, Amargosa vole, American badger, spotted bat, Cushenbury milk-vetch, Cushenbury oxytheca, short-joint beavertail cactus	29,000	400	20	0	100	520	1.8%
Riparian/ Wetlands	Arroyo toad, California red-legged frog, Coast horned lizard, Couch's spadefoot, Western pond turtle, American peregrine falcon, Arizona Bell's vireo, bald eagle, bank swallow, Crissal thrasher, gilded flicker, elf owl, Inyo California towhee, loggerhead shrike, long-eared owl, Lucy's warbler, northern harrier, redhead, vermillion flycatcher, white-tailed kite, yellow-breasted chat, yellow-headed blackbird, yellow warbler, Amargosa	1,443,000	2,000	200	0	200	2,400	0.2%

Table IV.7-279
BLM LUPA Impact Analysis for Natural Communities and Associated Non-Covered Species – Preferred Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	vole, Mojave River vole, Arizona myotis, cave myotis, fringed myotis, hoary bat, long-eared myotispocketed free-tailed bat, spotted bat, western mastiff bat, western yellow bat, Yuma myotis, Ash Meadows gum plant, Inyo County star-tulip, Parish's alkali grass, Parish's phacelia, Amargosa pupfish, Amargosa speckled dace, Amargosa spring snails							
Agriculture/ Rural Land Cover	American peregrine falcon, Bank swallow, loggerhead shrike, long-eared owl, northern harrier, redhead, yellow-headed blackbird, yellow warbler, Arizona myotis, hoary bat, Tehachapi pocket mouse, western mastiff bat, western yellow bat	9,000	50	0	30	100	180	2%

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

[2] Solar impacts include ground-mounted distributed generation.

[3] Impacts to the dune community, riparian communities, arid west freshwater emergent marsh, and Californian warm temperate marsh/seep would be avoided through implementation of CMAs. Only impacts determined to be unavoidable would occur in these natural communities.

[4] This amount assumes the loss of conservation value for all land fragmented by the well fields.

Notes: The natural community classification system is described in Chapter III.7 and follows CDFG 2012. Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Impact BR-5: Siting, construction, decommissioning, and operational activities could result in loss of nesting birds (violation of the federal Migratory Bird Treaty Act and California Fish and Game Code Sections 3503, 3503.5, 3511, and 3513).

Siting, construction, decommissioning, and operations of renewable energy and transmission projects would result in the removal of vegetation and other nesting habitat and cause increased human presence and noise that has the potential to cause the loss of nesting birds, which would be a violation of the federal Migratory Bird Treaty Act. The potential loss of nesting birds resulting from these activities would be adverse without application of CMAs. Avoidance and minimization CMAs (AM-PW-4, 13, 14; AM-DFA-RIPWET-1, 3, 5; AM-DFA-AG-1 through 6; AM-DFA-ICS CMAs for bird species) include the season restrictions, survey requirements, and setbacks necessary to avoid and minimize the loss of nesting birds.

Impact BR-6: Siting, construction, decommissioning, and operational activities would adversely affect habitat linkages and wildlife movement corridors, the movement of fish, and native wildlife nursery sites.

Species-specific habitat linkages and wildlife movement areas are a component of analysis conducted under Impact BR-4 above. Suitable habitat for each species includes areas of habitat linkages and wildlife movement. Analysis under BR-4 specifically incorporates habitat linkage information for desert tortoise, Mohave ground squirrel, and desert bighorn sheep. In addition to the species-specific analysis of impacts to suitable habitat supporting habitat linkages and wildlife movement for species, landscape level information on habitat linkages (i.e., Desert Linkage Network) and migratory bird movement are analyzed below.

Desert Linkage Network

Table IV.7-280 shows the impact analysis for the desert linkage network for Alternative 4 for the BLM LUPA. Overall, over 17,000 acres of desert linkage network could be adversely impacted in DFAs and transmission corridors in seven different subareas. In the Cadiz Valley and Chocolate Mountains subarea, DFAs are located in the portion of the desert linkage network that connects the Colorado River to the northern part of the McCoy Mountains. There are also DFAs in the linkage network that extends along the McCoy Mountains and connects south to the Palo Verde Mesa. There are also DFAs in the Chuckwalla Valley portion of a linkage network that extends west and south. In the Imperial Borrego Valley, there are DFAs in the northern portion of the desert linkage network that extends along East Mesa from east of the Imperial Valley north toward the Coachella Canal. In the Mojave and Silurian Valley, there are DFAs in the Mojave Valley in a linkage that connects the area east of Barstow north to the Superior Valley. In the Owens River Valley, there are DFAs in the desert linkage network that connects the Haiwee Reservoir to Indian Wells. In the Panamint Death Valley subarea, there are DFAs in the

Searles Valley in a linkage that connects the Searles and Argus Ranges. In the Pinto Lucerne Valley and Eastern Slopes subarea, there are DFAs in the desert linkage network that connects the Grapevine Canyon Recreation Lands to the Granite Mountains and the Ord Mountains. There are also DFAs in the linkage that connects Turtle Mountain to the Mojave River. In the West Mojave and Eastern Slopes subarea, there are DFAs in the linkage that connects the area around Baldy Mesa along the southern edge of the Plan Area to Helendale. Farther west in the Plan Area, there are DFAs in the linkages that connect Soledad Mountain to the Tehachapi Mountains.

To avoid and minimize impacts to the desert linkage network beyond what is presented in Table IV.7-280, Covered Activities will be sited and designed to maintain the function of wildlife connectivity in the following linkage and connectivity areas: (1) across Interstate 10 centered on Wiley's Well Road to connect the Mule and McCoy mountains, (2) across Interstate 10 to connect the Chuckwalla and Palen mountains, (3) across Interstate 10 to connect the Chuckwalla Mountains to the Chuckwalla Valley east of Desert Center, and (4) the confluence of Milpitas Wash and Colorado River floodplain. In addition, the Riparian and Wetland Natural Communities and Covered Species CMAs will contribute to maintaining and promoting habitat connectivity and wildlife movement. The inclusion of DRECP Variance Lands in this alternative and the uncertainty of future management of these lands undermines the strength of the DRECP Plan-Wide Reserve Design Envelope for Alternative 4.

Table IV.7-280
BLM LUPA Impact Analysis for the Desert Linkage Network – Alternative 4

Desert Linkage Network by Ecoregion Subarea	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Cadiz Valley and Chocolate Mountains	709,000	10,000	800	-	8,000	19,000
Imperial Borrego Valley	146,000	30	-	50	30	100
Kingston and Funeral Mountains	138,000	-	-	-	-	-
Mojave and Silurian Valley	368,000	-	-	-	200	200
Owens River Valley	15,000	200	-	300	200	600
Panamint Death Valley	112,000	400	-	-	80	500
Pinto Lucerne Valley and Eastern Slopes	168,000	30	30	-	300	400
Piute Valley and	111,000	-	-	-	-	-

Table IV.7-280
BLM LUPA Impact Analysis for the Desert Linkage Network – Alternative 4

Desert Linkage Network by Ecoregion Subarea	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Sacramento Mountains						
Providence and Bullion Mountains	377,000	-	-	-	-	-
West Mojave and Eastern Slopes	386,000	300	20	-	100	400
Total	**12,650,000**	**42,000**	**5,000**	**2,000**	**29,000**	**79,000**

1 Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
2 Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Migratory Birds

Migration patterns and the potential impacts of different technologies are discussed, in the typical impacts section (Section IV.7.2.1.3), with direct habitat loss quantified in BR-4, and operational impacts quantified in BR-9. The following analysis focuses on the anticipated distribution of different technology types in relation to known migratory corridors, and migratory resources in each subarea.

In Alternative 4 wind generation is a moderate proportion of the overall generation mix. BLM managed DFAs are divide between the West Mojave and Eastern Slopes, Pinto Lucerne Valley and Cadiz and Chocolate Mountain Subareas. Wind development would mostly occur in DFAs to the north of the I-10 and in McCoy Valley, with considerably smaller amounts of development on the eastern slopes of the Tehachapi Mountains and in the mountainous areas around Lucerne Valley. Key bird migration areas affected would include migratory bird corridors between the Colorado River corridor and the Coachella Valley and Salton Sea areas. More minor impacts would occur to routes between the passes of the Tehachapi and San Bernardino mountains, and the temporary lakes and wetland refuges on and to the north of Edwards AFB

Solar development would mostly be constructed throughout the Cadiz and Chocolate Mountain subareas, with smaller quantities in West Mojave and Eastern Slopes and

Imperial Borrego Valley subareas. Alternative 4 would result in considerable quantities of new solar PV and solar thermal generation facilities in the BLM SEZ along the I-10 corridor to the west side of the Colorado River. This may give the appearance of a string of lakes on known migratory linkages for birds between the Colorado River and Coachella Valley. Similarly, development in the West Mojave and Eastern slopes, Pinto Lucerne Valley would occur in DFAs between the passes of the Tehachapi and San Bernardino Mountains, and dry lakes on Edwards AFB, as well as, the North Mojave dry lakes of China Lake, Koehn Lake, Harper Lake and Searles Lake. Development, around the Salton Sea and in the Imperial Valley, would be on the west side of the East Mesa ACEC, and include areas to the west of the Salton Sea that include the Truckhaven geothermal resource area and areas to the east of the Salton Sea in the foothills of the Chocolate Mountains.

Application of CMAs would require projects to be sited and designed to avoid impacts to occupied habitat and suitable habitat for Covered Species to the maximum extent feasible. A bird and bat use and mortality monitoring program would be implemented during operations Further, proposed projects that are likely to impact bird and bat Covered Species during operation would develop and implement a project-specific Bird and Bat Covered Species Operational Actions that meets the approval of the appropriate DRECP Coordination Group. The goal of the project-specific Bird and Bat Covered Species Operational Actions would be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind solar and geothermal projects. CMAs would negate direct loss of riparian and wetlands habitats, result in no directly loss of riparian and wetland a habitats. Further, implementation of species specific CMAs would ensure impacts to bird species would be reduced and compensation CMAs would offset habitat loss for these species. The compensation requirements in the Bird and Bat Covered Species Operational Actions would be based on ongoing/annual fees and the biological basis for the fee would be determined by the mortality effects as annually measured and monitored according to the Bird and Bat Covered Species Operational Actions. Application of CMAs would reduce the overall impacts to migratory bird populations.

Impact BR-7: Siting, construction, decommissioning, and operational activities would result in habitat fragmentation and isolation of populations of listed and sensitive plants and wildlife.

As discussed in the Plan-wide analysis, the construction and operation of renewable energy and transmission projects can have the potential to fragment intact and interconnected landscapes resulting in isolated patches of habitat, isolated species populations, reduced gene flow, and remaining habitat that is more exposed to the edge effects of adjacent developments. The DRECP integrated planning process, as described in Volume II, avoids and minimizes this impact through the siting of DFAs and through the reserve design. In order to minimize habitat fragmentation and population isolation, DFAs were sited in less

intact and more degraded areas. However, under Alternative 4, DRECP Variance Lands are included that were not sited to avoid intact landscapes and were not sited to ensure development is constrained to more degraded lands. The inclusion of the DRECP Variance Lands scattered across the landscape under Alternative 4 undermines the intactness and puts larger intact landscapes at risk of dispersed future development. Other measures of fragmentation and population isolation effects include the amount of impacts on environmental gradients such as elevation, landforms, slope, and aspect. The impacts to these four environmental gradients under Alternative 4 within DFAs on BLM Land would follow the same overall pattern as Plan-wide impacts (AM-LL-1 through AM-LL-4).

Impact BR-8: Construction of generation facilities or transmission lines would result in increased predation of listed and sensitive wildlife species.

Higher predator densities and hence high predation rates are a documented effect of increased human development in the Plan Area. The extent to which Covered Activities contribute to increasing predation through phenomena like predator subsidization is linked to the likely extent of Covered Activities in undisturbed parts of desert.

Agricultural landscapes in the west Mojave, Lucerne Valley and Imperial Borrego Valley or surrounding Blythe are already disturbed, with relatively high levels of human activity that supplement predators such as ravens and coyotes, and support covered predator species such as burrowing owls and Swainson's hawk. Therefore, covered operational activities in already disturbed rural and agricultural landscapes are would result in a little increase in predation.

However, Covered Activities in undisturbed desert habitat are likely to disproportionately supplement predators, increase predator density and consequently increase predation rates on Covered Species. Alternative 4 would result 50,000 acres of permanent conversion of natural desert communities with 200 acres of impacts (<1% of the total ground disturbance) within areas characterized by disturbed land cover types. All impacts are likely to be within natural communities. Susceptible species across the plan area include desert tortoise, Mojave fringe toed lizard, flat-tailed horned lizard, Mohave ground squirrel. As well as nesting birds such as golden eagle, tricolored blackbird, and Swainson's hawk.

The inclusion of DRECP Variance Lands under Alternative 4 has the potential for increased risk of scattered transmission lines and scattered development activities in remote and intact landscapes, which could lead to future increased levels of predation.

Application of a Common Raven management plan (AM-PW-6), approved by the appropriate DRECP Coordination Group would reduce project activities that increase predator subsidization. Including, removal of trash and organic waste; minimize introduction of new water sources including pooling of water from dust control; removal of

carcasses from bird and bat collisions; and reduction in new nesting and perching sites where feasible.

The level of impact on Non-Covered Species would be similar to that discussed for the Covered Species.

Impact BR-9: Operational activities would result in avian and bat injury and mortality from collisions, thermal flux or electrocution at generation and transmission facilities.

The impacts of operation activities on avian and bat injury and mortality are analyzed below for wind turbines, solar, and transmission.

Wind Turbine

Overall, Alternative 4 would result in a median of 3,000 collisions per year for birds and 14,000 collisions per year for bats across the BLM LUPA DFAs. The expected distribution of wind generation indicates that 88% of all collisions in DFAs on BLM lands would occur in the Cadiz Valley and Chocolate Mountains subarea and 6% of collision, would occur in the Pinto Lucerne Valley and Eastern Slopes subarea, and 6% in West Mojave and Eastern Slopes subareas. Susceptible avian species in Cadiz and Chocolate Mountains would include great sandhill crane, Bendire's thrasher, golden eagle and burrowing owl.

The high rate of collision in the Cadiz Valley and Chocolate Mountains subarea may result in a higher risk of collision for western yellow-billed cuckoo, Yuma clapper rail, mountain plover, southwest willow flycatcher, and burrowing owl, greater sandhill crane, Bendire's thrasher, golden eagle and burrowing owl. Whereas, development in the Pinto and Lucerne Valley subarea would affect golden eagle territories and important Bendire's thrasher habitat. The remaining development in the West Mojave would affect Bendire's thrasher, burrowing owl, California condor, golden eagle, least Bell's vireo, mountain plover, southwestern willow flycatcher, Swainson's hawk, and tricolored blackbird.

Pre-construction CMAs require habitat assessments and pre-construction surveys for covered riparian and wetland bird, burrowing owl, greater sandhill crane, Swainson's hawk, Bendire's thrasher, and golden eagle.

Application of siting CMAs would avoid or minimize the risk to species localities. Setbacks from active nests would be required for Bendire's thrasher, California condor, Gila woodpecker, and golden eagle. In addition, projects would be sited and designed to avoid impacts to occupied habitat, and suitable habitat for Covered Species to the maximum extent feasible. Implementation of bat specific CMAs include 0.5-mile setbacks from all bat maternity roosts and 5% disturbance caps on desert scrub and woodland habitats in the vicinity of occupied pallid bat and Townsend's big-eared bat roosts would reduce impacts to covered bat species.

Applicants would develop and implement a project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meets the approval of the appropriate DRECP Coordination Group. The goal of the project-specific Bird and Bat Covered Species Operational Actions will be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar, geothermal, or transmission project. A bird and bat use and mortality monitoring program will be implemented during operations using current protocols and best procedures available at time of monitoring. Further, the compensation requirements in the Bird and Bat Covered Species Operational Actions would be based on ongoing/annual fees and the biological basis for the fee will be determined by the mortality effects as annually measured and monitored according to the Bird and Bat Covered Species Operational Actions.

Similarly, a Condor Operations Strategy (COS) would be developed on a project-specific basis with the goal of avoiding mortality from operations of wind, solar and geothermal projects. No take for condors will be will be permitted in the form of kill from project operations. Any actions taken to encourage condors to leave an area that might result in harassment, injury, or mortality to the bird will be conducted by a Designated Biologist.

Table IV.7-281
BLM LUPA Estimated Range of Bird and Bat Collisions per Year by Subarea – Alternative 4

Ecoregion Subarea	# Turbines	Birds (Collisions/Yr)[1]			Bats (Collisions/Yr)[1]		
		Low	*Median*	*High*	*Low*	*Median*	*High*
Cadiz Valley and Chocolate Mountains	512	800	3,000	10,000	1,000	12,000	72,000
Imperial Borrego Valley	0	-	-	-	-	-	-
Kingston and Funeral Mountains	0	-	-	-	-	-	-
Mojave and Silurian Valley	0	-	-	-	-	-	-
Owens River Valley	0	-	-	-	-	-	-
Panamint Death Valley	0	-	-	-	-	-	-
Pinto Lucerne Valley and Eastern Slopes	32	-	200	600	100	700	4,000
Piute Valley and Sacramento Mountains	0	-	-	-	-	-	-
Providence and Bullion Mountains	0	-	-	-	-	-	-
West Mojave and Eastern Slopes	38	100	200	700	100	900	5,000
Grand Total	**581**	**900**	**3,000**	**11,000**	**1,000**	**14,000**	**81,000**

[1] Method for estimation of annual bird and bat collision rates described in Section IV.7.1.1.2 and discussed in more detail in Section IV.7.2.1.3

Note: The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table

Solar

Under Alternative 4, impacts to avian and bat species from solar development based on the planned solar capacity. BLM administered DFAs would see a 3.5-fold increase in collision risks relative to baseline. 82% of the collision risks would occur in the Cadiz and Chocolate Mountains, with, 5% in Imperial Borrego Valley, 8% in West Mojave and Eastern Slopes, and the remaining 5 % spread across the rest of the plan area.

The development in the Cadiz and Chocolate Mountains subarea would occur in the solar PEIS SEZ adjacent to the I-10 corridor, and in the McCoy Wash. Species impacted by Covered Activities include: Bendire's thrasher, burrowing owl, Gila woodpecker, golden eagle, greater sandhill crane, and mountain plover.

Development in the West Mojave and Eastern Slopes subareas would occur in the Tehachapi Mountains and areas to the north of Edwards AFB. In these areas, susceptible species would include tricolored blackbird, golden eagle, mountain plover, Bendire's thrasher, Burrowing owls and to a lesser extent Swainson's hawk, pallid bat, California leaf-nosed bat, Townsend's big-eared bat.

Minor development in other areas would include Covered Activities associated with solar generation in the Pinto and Lucerne Valley subarea. Species impacted would include golden eagle, and Bendire's thrasher. Anticipated impacts in Imperial Borrego Valley would occur in three BLM managed areas: the western foothills of the Chocolate Mountains; land along the western edge of East Mesa ACEC; and in BLM managed lands on the west side of the Salton Sea species. Birds and bats at risk from solar impacts include Bendire's thrasher, burrowing owl, California black rail, Gila woodpecker, golden eagle, greater sandhill crane, mountain plover, southwestern willow flycatcher, Swainson's hawk, and Yuma clapper rail, pallid bat, California leaf-nosed bat, Townsend's big-eared bat.

To offset potential impacts, the application of CMAs would require projects to be sited and designed to avoid impacts to occupied and suitable habitat for Covered Species, to the maximum extent feasible. Further, siting and construction CMAs require setbacks from riparian and wetland habitats which would minimize direct loss. Compensation CMAs would offset habitat loss for Covered Species. A bird and bat use and mortality monitoring program would be implemented during operations. Any proposed projects that are likely to impact bird and bat Covered Species during operation would develop and implement project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meet the

approval of the appropriate DRECP Coordination Group. The goal of the project-specific Bird and Bat Covered Species Operational Actions would be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar and geothermal projects. The compensation requirements of AM-LL-4 would be based on ongoing/annual fees and the biological basis for the fee would be determined by the mortality effects as annually measured and monitored according to AM-LL-4. In combination, the application of siting, monitoring, operational and compensation CMAs would minimize impacts to resident and migratory birds. Bat mortality from solar facilities may occur because of collision or solar flux injury. No DFAs are known to be specifically sensitive areas for bat foraging, and implementation of bat specific CMAs include 500 feet setbacks from all bat maternity roosts and 5% disturbance caps on desert scrub and woodland habitats in the vicinity of occupied pallid bat and Townsend's big-eared bat roosts would reduce impacts to bat Covered Species. Further, the development of Bird and Bat Covered Species Operational Actions (AM-LL-4) as discussed above would greatly reduce the risk to bat populations. Consequently, application of CMAs would reduce the overall impacts to bat populations.

Transmission

The transmission collision and electrocution impacts would occur from generation tie lines (collector lines), new substations, and major transmission lines (delivery lines) that deliver power to major load centers. The distribution of impacts from collector lines would mostly occur within DFAs and be similar in distribution to the generation facilities. Most of the affected areas would be in Cadiz Valley and Chocolate Mountains, and the Imperial Borrego with 12,000 acres, and 1,000 acres of terrestrial impacts anticipated respectively. The remaining 1,400 acres of terrestrial impacts would be spread throughout the remaining subareas.

Both large transmission lines and the network of smaller gen-tie lines would present collision and electrocution hazard to covered bird species. In particular, lines running perpendicular to migratory corridors, and/or close to bird refuges would represent a greater hazard. Such lines would include anticipated delivery lines in Chuckwalla Valley would run parallel to I-10 corridor in the designated BLM/368 transmission corridors. In the Imperial Borrego Valley subarea, lines would run along the along the eastern side of Salton Sea in existing transmission corridors that run parallel to the foothills of the Chocolate Mountains.; as well as collector lines running along the western side of the Salton Sea from the Truckhaven geothermal resource areas. All these lines would represent additional risk to migrating and overwintering covered avian species, due to their location. Collision risks in these areas increase during storm events when flocks of migrating birds come down to wait out the storms before continuing their migration.

All avian Covered Species may be impacted by additional transmission infrastructure. To ameliorate potential hazards, transmission projects would reduce impacts to Covered

Species by implementing Plan-wide, landscape-level, natural community, and Covered Species CMAs where feasible, as discussed under the wind impacts section.

Applicants would develop and implement a project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meets the approval of the appropriate DRECP Coordination Group. The goal of the project-specific Bird and Bat Covered Species Operational Actions will be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar, geothermal, or transmission project. A bird and bat use and mortality monitoring program will be implemented during operations using current protocols and best procedures available at time of monitoring. Further, the compensation requirements in the Bird and Bat Covered Species Operational Actions would be based on ongoing/annual fees and the mortality effects as annually measured and monitored according to the Bird and Bat Covered Species Operational Actions will determine the biological basis for the fee.

In addition, transmission projects would implement transmission specific CMAs that would: where feasible, bury electrical collector lines along roads (AM-TRANS-1); fit flight diverters on all transmission projects spanning or within 1,000 feet of water bodies and watercourses (AM-TRANS-2); avoid siting transmission projects that span canyons or are located on ridgelines (AM-TRANS-3); restrict transmission projects to within designated utility corridors (AM-TRANS-4). With the implementation of CMAs impacts to Covered Species would minimized.

The inclusion of the DRECP Variance Lands under Alternative 4, while not analyzed as if they were developed, have the potential to be developed in the future. Due to the remote nature of these lands, transmission lines would likely be needed to support any future development in these areas and the designation of these lands as DRECP Variance Lands has the potential to increase the risk of transmission effects on sensitive species.

Operational Impacts Take Estimates for Covered Avian and Bat Species

The following section summaries the initial estimates for take of Covered Species by operational activities that would require compensatory mitigation. Take estimates integrate all sources of mortality for each technology discussed above. It is expected that much of the future development would be concentrated in agricultural habitats. This would affect species such as burrowing owl, Swainson's hawk, greater sandhill crane and mountain plover; estimated take reflects this assumption.

Table IV.7-282
BLM LUPA Estimated Total Take for Covered Avian and Bat Species – Alternative 4

Covered Bird and Bat Species	Solar Impact	Wind Impact	Geothermal Impact	Total Impact
Bendire's thrasher	0	0	0	0

Table IV.7-282
BLM LUPA Estimated Total Take for Covered Avian and Bat Species – Alternative 4

Covered Bird and Bat Species	Solar Impact	Wind Impact	Geothermal Impact	Total Impact
Burrowing owl	20	10	10	40
California condor	0	0	0	0
California black rail	10	0	0	10
Gila woodpecker	10	0	0	10
Golden eagle	n/a	n/a	n/a	n/a
Least Bell's vireo	30	0	0	30
Mountain plover	20	10	10	40
Greater sandhill crane	0	0	0	0
Southwestern willow flycatcher	20	10	0	30
Swainson's hawk	0	0	0	0
Tricolored blackbird	10	0	0	10
Western yellow billed cuckoo	10	0	0	10
Yuma clapper rail	10	0	0	10
Grand Total Avian Species	**140**	**30**	**20**	**190**
California leaf-nosed bat	10	40	0	50
Pallid bat	10	20	0	30
Townsend's big-eared bat	20	0	0	20
Grand Total Bat Species	**40**	**60**	**0**	**100**

[1] Take for California condor would not be permitted under the DRECP.

[2] Take of Golden Eagle would be permitted on a project by project basis. Based on the 2013 analysis, no more than 15 golden eagles per year would be authorized for 2014 for any new activity within the Plan Area. Take limits for the DRECP area will be re-evaluated annually based on the amount of ongoing take and population estimates of eagles within the local-area population of eagles.

Note: The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table

IV.7.3.6.2.2 Impacts of Changes to BLM Land Designations

The BLM LUPA would establish conservation designations on BLM-administered lands under each alternative that would conserve biological resources, including NLCS, ACEC, and wildlife allocations. On BLM-administered lands under Alternative 4, the BLM LUPA would designate approximately 4,431,000 acres of BLM LUPA conservation designations, including 2,639,000 acres of NLCS, 1,518,000 acres of ACEC, and 274,000 acres of wildlife allocation. Additionally, existing conservation areas occur on BLM-administered lands that conserve biological resources. Under Alternative 4, DRECP Variance Lands areas are scattered across the Plan Area including south of the Chocolate Mountains in eastern

Imperial Borrego Valley subarea, in Rice Valley in northern Cadiz Valley and Chuckwalla Mountains subarea, and in the Silurian Valley area of the Kingston and Funeral Mountains and Mojave and Silurian Valley subareas. The DRECP Variance Lands lead to uncertainty about the protection and functionality of the DRECP Plan-Wide Reserve Design Envelope for Alternative 4. Appendix L provides unit-specific ACEC and NLCS worksheets that identify relevant resources, specific resources goals, objectives, and prescribed management actions. The following provides an analysis of the conservation that would be provided in these BLM LUPA conservation designations on BLM-administered lands, organized by landscape, natural communities, and species.

The BLM LUPA would also establish Special Recreation Management Areas (SRMAs) and would identify lands to be managed to protect Wilderness Characteristics. These BLM LUPA land designations are overlays that specify particular management and uses for specific areas. Unit-specific SRMA worksheets are provided in Appendix L and the CMAs specific to lands managed to protect Wilderness Characteristics are provided as part of the Volume II descriptions of the DRECP alternatives. These land designations may co-occur with the BLM LUPA conservation designations (NLCS, ACECs, and wildlife allocations). Where these land designations do no co-occur with the BLM LUPA conservation designations, they were not included as part of the reserve design envelope and were not included in the conservation analysis for biological resources provided in this section.

Landscape

Habitat Linkages

Table IV.7-283 shows the conservation of the desert linkage network under Alternative 4 for the BLM LUPA. Conservation of the desert linkage network totals more than 2.4 million acres (66%). The linkage in the northern portion of the Cadiz Valley and Chocolate Mountains subarea that connects the Ward and Cadiz Valleys through the Old Woman Mountains is mostly conserved. Though the majority of the remaining linkages are conserved, there are some DFAs that that may interrupt them (see Section IV.7.3.6.2.1). None of the linkages in the Imperial Borrego Valley or Kingston and Funeral Mountains subareas are entirely conserved. None of the linkages in the Mojave and Silurian Valley subarea are entirely conserved since the middle portion of the subarea is not in Reserve Lands. Sections of the single linkage in the Owens River Valley subarea are not conserved. The connectivity of the northernmost linkage in the Panamint Death Valley subarea is preserved along the Searles Range, but not between the Searles and Argus Ranges since a portion of the Searles Valley is not conserved. The connection in the China Lake Naval Weapon Center is not conserved in Reserve Lands, and only portions the remainder of this linkage to the west are conserved. In the Pinto Lucerne Valley and Eastern Slopes, Providence and Bullion Mountains, and Piute Valley and Sacramento Mountains subareas, none of the linkages are completely conserved. While none of the linkages in the West

Mojave and Eastern Slopes subarea are wholly conserved in Reserve Lands, the linkage network south of Indian Wells is mostly conserved.

In addition to conservation of the desert linkage network, CMAs provide for the avoidance and minimization of certain linkages in the DFAs (see Section IV.7.3.6.2.1).

The DRECP Plan-Wide Reserve Design Envelope for Alternative 4 was developed, in part, to conserve and avoid impacts to habitat linkages and wildlife movement, including the desert linkage network; however, the inclusion of DRECP Variance Lands in this alternative and the uncertainty of future management of these lands undermines the strength of the DRECP Plan-Wide Reserve Design Envelope for Alternative 4. The designation of DRECP Variance Lands scattered across the Plan Area under Alternative 4 leads to uncertainty regarding the protection and long-term viability of the habitat linkages within the reserve design envelope.

Table IV.7-283
BLM LUPA Conservation Analysis for the Desert Linkage Network – Alternative 4

Desert Linkage Network by Ecoregion Subarea	Available Lands (acres)	Existing Conservation[1] (acres)	NLCS (acres)[2]	ACEC (acres)	Wildlife Allocation (acres)	Total Conservation (acres)	% of Available Lands
Cadiz Valley and Chocolate Mountains	890,000	187,000	295,000	88,000	1,000	584,000	66%
Imperial Borrego Valley	156,000	14,000	53,000	300	-	68,000	44%
Kingston and Funeral Mountains	174,000	28,000	33,000	55,000	-	118,000	68%
Mojave and Silurian Valley	507,000	179,000	49,000	149,000	-	383,000	76%
Owens River Valley	19,000	40	5,000	7,000	-	12,000	63%
Panamint Death Valley	206,000	109,000	38,000	37,000	-	184,000	89%
Pinto Lucerne Valley and Eastern Slopes	291,000	16,000	53,000	70,000	700	142,000	49%
Piute Valley and Sacramento Mountains	152,000	14,000	78,000	16,000	-	110,000	72%
Providence and Bullion Mountains	426,000	144,000	114,000	86,000	-	348,000	82%

Table IV.7-283
BLM LUPA Conservation Analysis for the Desert Linkage Network – Alternative 4

Desert Linkage Network by Ecoregion Subarea	Available Lands (acres)	Existing Conservation[1] (acres)	NLCS (acres)[2]	ACEC (acres)	Wildlife Allocation (acres)	Total Conservation (acres)	% of Available Lands
West Mojave and Eastern Slopes	860,000	45,000	73,000	298,000	8,000	470,000	55%
Grand Total	**3,682,000**	**736,000**	**790,000**	**806,000**	**10,000**	**2,419,000**	**66%**

1 Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on BLM-administered land

2 Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), on BLM-administered land

Notes: Conservation acreages reported for Existing Conservation and BLM LUPA conservation designations reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Overlaps of ACECs or Wildlife Allocations with NLCS designations are reported as NLCS designations. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Hydrological Resources

A conservation analysis for hydrological resources is provided below, including playa, seep/spring, and the four major rivers in the Plan Area (i.e., Amargosa, Colorado, Mojave and Owens) for Alternative 4 on BLM land. Conservation of riparian areas and wetlands, which co-occur with many of these hydrological resources is provided below under Natural Communities.

Playa

Playa totals 163,000 acres in the Plan Area. Overall, 53% (86,000 acres) would be conserved under Alternative 4 on BLM land. Existing Conservation would account for 12% of the conservation, NLCSs would account for 32%, ACECs would account for 1%, and wildlife allocations would account for 40%. Additionally, playas and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks. CMAs for playas would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided riparian or wetland natural communities.

Seep/Spring

There are 177 seep/spring locations in the Plan Area under Alternative 4 on BLM land. Overall, 77% (136 locations) of the seep/spring locations would be conserved under Alternative 4 on BLM land. The conservation of seep/spring under Alternative 4 on BLM land would be more than half in all subareas except in the Imperial Borrego Valley location (33%, 1 location). These include Cadiz Valley and Chocolate Mountains (100%, 5 locations), Kingston and Funeral Mountains (67%, 20 locations), Mojave and Silurian Valley (100%, 10 locations), Owens River Valley (52%, 6 locations), Panamint Death Valley (87%, 10 locations), Piute Valley and Sacramento Mountains (83%, 13 locations), Pinto Lucerne Valley and Eastern Slopes (76%, 29 locations), Providence and Bullion Mountains (90%, 17 locations), and West Mojave and Eastern Slopes (77%, 25 locations).

Overall, Existing Conservation would account for 39% of the conservation of seep/spring, NLCSs would account for 38%, ACECs would account for 21%, and wildlife allocations would account for less than 1%. Additionally, seeps and springs and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks. CMAs for seep/spring locations would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided wetland natural communities.

Major Rivers

Overall, 86% of the major rivers would be conserved under Alternative 4 on BLM land, including 90% of the Amargosa River and 77% of the Mojave River. Existing Conservation would account for 41%, NLCSs would account for 40%, and ACECs would account for 20%. Additionally, major rivers and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks.

Dune and Sand Resources

Overall, 72% (706,000 acres) of dunes and sand resources would be conserved under Alternative 4 on BLM land. At least 50% of dunes and sand resources would be conserved in all subareas in the Plan Area that contain substantial acreage of dunes and sand resources, except on the Pinto Lucerne Valley and Eastern Slope at 31% (5,000 acres).These areas include Cadiz Valley and Chocolate Mountains at 79% (417,000 acres), Imperial Borrego Valley at 62% (73,000 acres), Kingston and Funeral Mountains at 65% (29,000 acres), Mojave and Silurian Valley at 72% (31,000 acres), Owens River Valley at 77% (4,000 acres), Panamint and Death Valley at 54% (17,000 acres), Providence and Bullion Mountains at 67% (125,000 acres), and West Mojave and Eastern Slopes at 79%

(7,000 acres). Additionally, dunes and sand resources and associated Covered Species, natural communities and ecological functions would be avoided through application of the dune avoidance and minimization CMAs.

Environmental Gradients

The conservation analysis addresses four types of environmental gradients in the Plan Area: elevation, landforms, slope, and aspect. The conservation of these four environmental gradients under Alternative 4 within DFAs on BLM Land would follow the same overall pattern as Plan-wide conservation.

Natural Communities

Table IV.7-284 shows the conservation to natural communities with changes to BLM LUPA Designations on BLM Land. A conservation summary by general community is provided below in comparison to Plan-wide conservation discussed in Section IV.7.3.2.1.2. Appendix R2 provides a detailed analysis of natural community conservation by ecoregion subarea.

California forest and woodlands

Overall, approximately 38,000 acres (85%) of California forest and woodlands would be conserved under Alternative 4 on BLM Lands, which is a greater proportion than is conserved Plan-wide. The majority of conservation would occur in the Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas. Conservation would primarily come from BLM LUPA conservation designations with wildlife allocations comprising most of the BLM LUPA conservation designations. In addition to conservation of California forest and woodlands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 11,000 acres (61%) of chaparral and coastal scrubs would be conserved under Alternative 4 on BLM Lands, which is more proportionally than would be conserved Plan-wide. The majority of conservation would occur in the Pinto Lucerne Valley and Eastern Slopes subarea. Conservation would primarily come from BLM LUPA conservation designations, especially ACECs. In addition to conservation of chaparral and coastal scrubs, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert conifer woodlands

Overall, approximately 41,000 acres (82%) of desert conifer woodlands would be conserved under Alternative 4 on BLM Lands, which is more proportionally than would be conserved Plan-wide. The majority of conservation would occur in the Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas. Conservation would primarily come from existing conservation and most of the BLM LUPA conservation designations are in NLCSs. In addition to conservation of desert conifer woodlands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert outcrop and badlands

Overall, approximately 960,000 acres (80%) of desert outcrop and badlands would be conserved under Alternative 4 on BLM Land, which is about the same proportion of available lands conserved Plan-wide. The majority of conservation would occur in the Cadiz Valley and Chocolate Mountains and Piute Valley and Sacramento Mountains subareas. Conservation would primarily come from existing conservation and most of the BLM LUPA conservation designations are in NLCSs. In addition to conservation of desert outcrop and badlands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert scrubs

Overall, approximately 5,539,000 acres (79%) of desert scrubs would be conserved under Alternative 4 on BLM Land, which is a greater proportion of available lands than is conserved Plan-wide. The majority of conservation would occur in the Cadiz Valley and Chocolate Mountains, Providence and Bullion Mountains, and Kingston and Funeral Mountains subareas. Conservation would primarily come from BLM LUPA conservation designations. In addition to conservation of desert scrubs, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Dunes

Overall, approximately 86,000 acres (68%) of dunes would be conserved under Alternative 4 on BLM Land, which is a lesser proportion of available lands conserved Plan-wide. About half of the conservation would occur in the Imperial Borrego Valley

subarea. Conservation would primarily come from BLM LUPA conservation designations, which are mostly NLCSs. In addition, CMA application would require avoidance of all dunes and prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

Grasslands

Overall, approximately 22,000 acres (76%) of grasslands would be conserved under Alternative 4 on BLM Land, which is a greater proportion of available lands compared to that conserved Plan-wide. The majority of conservation would occur in the Pinto Lucerne Valley and Eastern Slopes subarea. Conservation would primarily come from BLM LUPA conservation designations, which are made up of mostly ACECs. In addition to conservation of grasslands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Riparian

Overall, approximately 421,000 acres (65%) of riparian communities would be conserved under Alternative 4 on BLM Land, which is a slightly greater proportion of available lands than is conserved Plan-wide. Almost half of the conservation would occur in the Cadiz Valley and Chocolate Mountains subarea. Conservation would primarily come from NLCSs. In addition, CMA application would require avoidance of and setbacks from all riparian communities as well as to other CMAs that would benefit riparian communities beyond simply conservation.

Wetlands

Overall, approximately 189,000 acres (64%) of wetland communities would be conserved under Alternative 4 on BLM Land, which is a greater proportion of available lands than is conserved Plan-wide. Most of the conservation would occur in the West Mojave and Eastern Slopes, Cadiz Valley and Chocolate Mountains, and Kingston and Funeral Mountains subareas. Conservation would primarily come from BLM LUPA conservation designations, which are mostly ACECs. In addition, CMA application would require avoidance of and setbacks from Arid West freshwater emergent marsh and Californian warm temperate marsh/seep as well as other CMAs that would benefit riparian communities beyond simply conservation.

Table IV.7-284
BLM LUPA Conservation Analysis for Natural Communities – Alternative 4

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	NLCS (acres)[2]	ACEC (acres)	Wildlife Allocations (acres)	Total Conservation (acres)	% of Available Lands
California forest and woodland							
Californian broadleaf forest and woodland	11,000	600	300	90	8,000	9,000	86%
Californian montane conifer forest	34,000	18,000	4,000	3,000	4,000	29,000	85%
Chaparral and coastal scrub community (Cismontane scrub)							
Californian mesic chaparral	500	0	0	0	300	300	57%
Californian pre-montane chaparral	300	0	10	10	300	300	89%
Californian xeric chaparral	5,000	2,000	200	30	500	3,000	58%
Central and south coastal California seral scrub	20	0	0	10	0	10	76%
Central and South Coastal Californian coastal sage scrub	13,000	2,000	2,000	4,000	0	8,000	62%
Western Mojave and Western Sonoran Desert borderland chaparral	200	20	70	0	0	90	45%
Desert conifer woodlands							
Great Basin Pinyon - Juniper Woodland	50,000	27,000	8,000	5,000	600	41,000	82%
Desert outcrop and badlands							
North American warm desert bedrock cliff and outcrop	1,203,000	566,000	309,000	66,000	19,000	960,000	80%

Table IV.7-284
BLM LUPA Conservation Analysis for Natural Communities – Alternative 4

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	NLCS (acres)[2]	ACEC (acres)	Wildlife Allocations (acres)	Total Conservation (acres)	% of Available Lands
Desert Scrub							
Arizonan upland Sonoran desert scrub	3,000	1,000	400	100	0	2,000	62%
Intermontane deep or well-drained soil scrub	69,000	16,000	15,000	32,000	0	62,000	91%
Intermontane seral shrubland	5,000	10	1,000	2,000	0	3,000	61%
Inter-Mountain Dry Shrubland and Grassland	282,000	86,000	70,000	35,000	70	190,000	68%
Intermountain Mountain Big Sagebrush Shrubland and steppe	24,000	5,000	7,000	2,000	3,000	17,000	70%
Lower Bajada and Fan Mojavean - Sonoran desert scrub	6,114,000	2,003,000	1,652,000	1,038,000	172,000	4,866,000	80%
Mojave and Great Basin upper bajada and toeslope	406,000	165,000	94,000	78,000	30	338,000	83%
Shadscale - saltbush cool semi-desert scrub	101,000	17,000	31,000	10,000	2,000	60,000	59%
Southern Great Basin semi-desert grassland	50	0	0	40	0	40	82%
Dunes							
North American warm desert dunes and sand flats	127,000	34,000	40,000	9,000	3,000	86,000	68%

Table IV.7-284
BLM LUPA Conservation Analysis for Natural Communities – Alternative 4

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	NLCS (acres)[2]	ACEC (acres)	Wildlife Allocations (acres)	Total Conservation (acres)	% of Available Lands
Grassland							
California Annual and Perennial Grassland	28,000	10,000	4,000	7,000	600	22,000	77%
California annual forb/grass vegetation	1,000	0	200	500	0	700	58%
Riparian							
Madrean Warm Semi-Desert Wash Woodland/Scrub	502,000	104,000	167,000	54,000	8,000	333,000	66%
Mojavean semi-desert wash scrub	11,000	1,000	2,000	6,000	20	9,000	84%
Sonoran-Coloradan semi-desert wash woodland/scrub	122,000	28,000	38,000	8,000	40	74,000	61%
Southwestern North American riparian evergreen and deciduous woodland	400	0	60	50	200	300	72%
Southwestern North American riparian/wash scrub	10,000	600	4,000	900	20	5,000	51%
Wetland							
Arid West freshwater emergent marsh	10	0	0	0	0	0	0%
Californian warm temperate marsh/seep	0	0	0	0	0	0	60%
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	147,000	13,000	30,000	19,000	15,000	78,000	53%
Open Water	700	0	60	10	0	80	12%

Table IV.7-284
BLM LUPA Conservation Analysis for Natural Communities – Alternative 4

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	NLCS (acres)[2]	ACEC (acres)	Wildlife Allocations (acres)	Total Conservation (acres)	% of Available Lands
Playa	26,000	300	100	600	23,000	24,000	94%
Southwestern North American salt basin and high marsh	122,000	2,000	24,000	60,000	0	86,000	71%
Wetland	100	0	0	10	0	10	4%
Other Land Cover							
Agriculture	6,000	0	500	400	0	800	14%
Developed and Disturbed Areas	44,000	200	700	600	200	2,000	4%
Not Mapped	800	0	20	30	0	50	7%
Rural	3,000	0	50	90	10	200	5%
Total	**9,471,000**	**3,101,000**	**2,506,000**	**1,442,000**	**261,000**	**7,310,000**	**77%**

1 Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on BLM-administered land

2 Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), on BLM-administered land

Notes: Conservation acreages reported for Existing Conservation and BLM LUPA conservation designations reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Overlaps of ACECs or Wildlife Allocations with NLCS designations are reported as NLCS designations. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Covered Species Habitat

Table IV.7-285 shows the conservation of Covered Species modeled habitat under the Alternative 4 (before the application of CMAs) under the BLM LUPA. Generally, the percent conservation of Covered Species modeled habitat in available lands is highly variable, ranging from 21% for greater sandhill crane to 91% for triple-ribbed milk-vetch.

Much of the modeled habitats for desert tortoise and Mojave fringe-toed lizard are in the Mojave Desert and conserved under Alternative 4 mainly in existing conservation areas and NLCSs. Flat-tailed horned lizard modeled habitat is mainly conserved in the NLCSs. Tehachapi slender salamander modeled habitat occurs in the Tehachapi Mountains where conservation is primarily composed of wildlife allocations. Furthermore, the siting of the DFAs under Alternative 4 largely avoids habitat for Mojave fringe-toed lizard and Tehachapi

slender salamander, and CMAs requiring avoidance of and setbacks from riparian, wetland, and dune habitat would further avoid and minimize the impacts on these species.

Conservation of bird species associated primarily with wetland and riparian habitats, including California black rail, least Bell's vireo, southwestern willow flycatcher, tricolored blackbird, western yellow-billed cuckoo, and Yuma clapper rail would be augmented by CMAs requiring avoidance of and setbacks from riparian and wetland habitats. Conservation of Bendire's thrasher occurs mainly in existing conservation and NLCSs. Burrowing owl, widespread, but mainly associated with open areas in the West Mojave and Eastern Slopes and agricultural areas in the Imperial Borrego Valley, would primarily be conserved in ACECs and NLCSs.

California condor mainly occurs in the West Mojave and Eastern Slopes subarea so the majority of conservation is also in this subarea with most of the conserved acreage in NLCSs and ACECs. Golden eagle modeled suitable habitat and associated conservation is widespread in the Plan Area with most of the conservation in existing conservation areas and NLCSs. Swainson's hawk is primarily associated with the West Mojave and Eastern Slopes, Imperial Borrego Valley, and Owens River Valley subareas; the majority of suitable habitat conserved is in ACECs. In addition to conservation of suitable habitat, CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs.

Almost half of the modeled suitable habitat for Gila woodpecker is conserved in the Imperial Borrego Valley in NLCSs. About half of the conservation of mountain plover suitable habitat is in ACECs under Alternative 4.

Conservation of suitable habitat for desert pupfish is mostly in NLCSs. Avoidance and setback provisions for managed wetlands and agricultural drains would conserve wetland and riparian features within the agricultural matrix and provide conservation benefits to desert pupfish. Owens pupfish and Owens tui chub are conserved primarily in existing conservation areas and ACECs.

Conservation of suitable habitat for bighorn sheep, both inter-mountain and mountain habitat, is widespread and is mainly in existing conservation areas and NLCSs. The siting of the DFAs under Alternative 4 largely avoid habitat for bighorn sheep. The total percent conservation from BLM LUPA conservation designations for burro deer (63%), desert kit fox (75%), and Mojave ground squirrel (78%) is divided between existing conservation areas, NLCSs, and ACECs. Suitable habitat for the covered bat species—California leaf-nosed bat, pallid bat, and Townsend's big-eared bat—is widespread and mainly conserved in existing conservation areas and NLCSs. In addition to conservation of suitable habitat for covered mammal species, the CMAs require avoidance of and setbacks from riparian and wetland habitat that would reduce impacts on these habitats used by Mohave ground squirrel, California leaf-nosed bat, pallid bat, and Townsend's big-eared bat.

Conservation of plant species ranges from 44% of suitable habitat for alkali mariposa-lily to 91% of suitable habitat for triple-ribbed milk-vetch. The proportion of suitable habitat conserved in existing conservation and BLM LUPA conservation designations varies by species. However, in addition to the conservation of modeled suitable habitat, the CMAs requiring surveys for plant Covered Species for all Covered Activities and the CMAs requiring avoidance of, and setbacks from, occupied habitat would further reduce the impacts on these species.

In addition to conservation of suitable habitat for Covered Species, compensation CMAs would offset habitat loss for all Covered Species.

Table IV.7-285
BLM LUPA Conservation Analysis for Covered Species Habitat – Alternative 4

Species	Available Lands (acres)	Existing Conservation[1] (acres)	NLCS (acres)[2]	ACEC (acres)	Wildlife Allocation (acres)	Total Conservation (acres)	% of Available Lands
Amphibian/Reptile							
Agassiz's desert tortoise	5,799,000	1,869,000	1,581,000	1,189,000	84,000	4,723,000	81%
Flat-tailed horned lizard	428,000	36,000	202,000	36,000	-	274,000	64%
Mojave fringe-toed lizard	731,000	214,000	147,000	61,000	128,000	550,000	75%
Tehachapi slender salamander	7,000	-	700	500	5,000	6,000	82%
Bird							
Bendire's thrasher	773,000	266,000	234,000	118,000	200	619,000	80%
Burrowing owl	1,707,000	144,000	450,000	480,000	37,000	1,112,000	65%
California black rail	31,000	1,000	7,000	2,000	-	10,000	30%
California condor	242,000	37,000	74,000	48,000	18,000	176,000	73%
Gila woodpecker	38,000	700	11,000	2,000	80	13,000	35%
Golden eagle–foraging	6,216,000	2,539,000	1,581,000	868,000	58,000	5,046,000	81%
Golden eagle–nesting	2,421,000	1,334,000	488,000	213,000	42,000	2,077,000	86%
Greater sandhill crane	3,000	-	400	300	-	700	21%
Least Bell's vireo	69,000	28,000	18,000	10,000	1,000	56,000	81%
Mountain plover	7,000	80	900	1,000	-	2,000	32%
Southwestern willow flycatcher	46,000	5,000	6,000	8,000	3,000	23,000	50%

Table IV.7-285
BLM LUPA Conservation Analysis for Covered Species Habitat – Alternative 4

Species	Available Lands (acres)	Existing Conservation[1] (acres)	NLCS (acres)[2]	ACEC (acres)	Wildlife Allocation (acres)	Total Conservation (acres)	% of Available Lands
Swainson's hawk	112,000	6,000	10,000	19,000	-	35,000	32%
Tricolored blackbird	13,000	5,000	1,000	2,000	200	9,000	64%
Western yellow-billed cuckoo	19,000	4,000	3,000	3,000	-	9,000	50%
Yuma clapper rail	5,000	30	700	600	-	1,000	24%
Fish							
Desert pupfish	500	20	300	-	-	300	56%
Owens pupfish	4,000	600	80	500	-	1,000	29%
Owens tui chub	4,000	600	80	500	-	1,000	29%
Mammal							
Bighorn sheep – inter-mountain habitat	2,243,000	785,000	606,000	349,000	35,000	1,776,000	79%
Bighorn sheep – mountain habitat	3,568,000	1,821,000	861,000	252,000	92,000	3,026,000	85%
California leaf-nosed bat	4,444,000	1,442,000	1,144,000	659,000	113,000	3,357,000	76%
Mohave ground squirrel	999,000	104,000	165,000	508,000	-	777,000	78%
Pallid bat	8,943,000	3,024,000	2,394,000	1,359,000	223,000	7,000,000	78%
Townsend's big-eared bat	7,599,000	2,330,000	2,025,000	1,214,000	232,000	5,800,000	76%
Plant							
Alkali mariposa-lily	2,000	-	700	-	-	700	44%
Bakersfield cactus	77,000	3,000	33,000	16,000	3,000	55,000	71%
Barstow woolly sunflower	72,000	400	400	63,000	-	64,000	89%
Desert cymopterus	67,000	4,000	1,000	52,000	-	57,000	86%
Little San Bernardino Mountains linanthus	80,000	6,000	24,000	400	20	31,000	38%
Mojave monkeyflower	116,000	23,000	52,000	25,000	-	101,000	87%
Mojave tarplant	136,000	29,000	48,000	27,000	4,000	108,000	79%
Owens Valley checkerbloom	55,000	12,000	2,000	800	-	15,000	27%
Parish's daisy	85,000	34,000	26,000	6,000	60	67,000	78%

Table IV.7-285
BLM LUPA Conservation Analysis for Covered Species Habitat – Alternative 4

Species	Available Lands (acres)	Existing Conservation[1] (acres)	NLCS (acres)[2]	ACEC (acres)	Wildlife Allocation (acres)	Total Conservation (acres)	% of Available Lands
Triple-ribbed milk-vetch	4,000	4,000	-	-	-	4,000	91%

[1] Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on BLM-administered land

[2] Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), on BLM-administered land

Notes: Conservation acreages reported for Existing Conservation and BLM LUPA conservation designations reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Overlaps of ACECs or Wildlife Allocations with NLCS designations are reported as NLCS designations. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For Agassiz's desert tortoise, desert tortoise important areas were identified that include tortoise conservation areas (TCAs), desert tortoise linkages, and desert tortoise high priority habitat (see desert tortoise BGOs in Appendix C). Table IV.7-286 provides a conservation analysis for these desert tortoise important areas, organized by desert tortoise Recovery Units: Colorado Desert, Eastern Mojave, and Western Mojave. Within the Colorado Desert Recovery Unit, 87% of TCAs, linkage habitat, and high priority habitat would be conserved under Alternative 4. Within the Eastern Mojave Recovery Unit, 86% of the important areas would be conserved Alternative 4. Within the Western Mojave Recovery Unit, 84% of TCAs and linkage habitat would be conserved under Alternative 4. CMAs would require avoidance of TCAs, except for impacts associated with transmission or impacts in disturbed portions of TCAs. Additionally, the CMAs would prohibit impacts that affect the viability of desert tortoise linkages. Compensation CMAs would be required for impacts to desert tortoise, including desert tortoise important areas. The designation of DRECP Variance Lands scattered across the Plan Area under Alternative 4 leads to uncertainty regarding the protection and long-term viability of the linkage habitat for desert tortoise within the reserve design envelope.

Table IV.7-286
BLM LUPA Conservation Analysis for Desert Tortoise Important Areas – Alternative 4

Recovery Unit	Desert Tortoise Important Areas	Available Lands (acres)	Existing Conservation[1] (acres)	NLCS (acres)[2]	ACEC (acres)	Wildlife Allocation (acres)	Total Conservation (acres)	% of Available Lands
Colorado Desert	High Priority Habitat	354,000	156,000	66,000	13,000	-	235,000	66%
	Linkage	406,000	126,000	19,000	73,000	119,000	338,000	83%
	TCA	1,728,000	454,000	879,000	258,000	2,000	1,593,000	92%
Colorado Desert Total		*2,488,000*	*735,000*	*965,000*	*344,000*	*121,000*	*2,166,000*	*87%*
Eastern Mojave	Linkage	728,000	418,000	174,000	28,000	-	620,000	85%
	TCA	239,000	56,000	82,000	76,000	-	215,000	90%
Eastern Mojave Total		*967,000*	*474,000*	*257,000*	*104,000*	-	*835,000*	*86%*
Western Mojave	Linkage	796,000	387,000	131,000	65,000	70	583,000	73%
	TCA	964,000	129,000	220,000	551,000	-	901,000	93%
Western Mojave Total		*1,759,000*	*517,000*	*351,000*	*616,000*	*70*	*1,483,000*	*84%*
Grand Total		**5,215,000**	**1,726,000**	**1,572,000**	**1,064,000**	**122,000**	**4,484,000**	**86%**

[1] Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on BLM-administered land

[2] Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), on BLM-administered land

Notes: Conservation acreages reported for Existing Conservation and BLM LUPA conservation designations reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Overlaps of ACECs or Wildlife Allocations with NLCS designations are reported as NLCS designations. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For Mohave ground squirrel, Mohave ground squirrel important areas were identified that include key population centers, linkages, expansion areas, and climate change extension areas (see Mohave ground squirrel BGOs in Appendix C). Table IV.7-287 provides a conservation analysis for these Mohave ground squirrel important areas. Approximately 87% of key population centers and 72% of linkages would be conserved under Alternative 4. Expansion areas and climate change extension areas would be conserved at 90% and 63% respectively. The CMAs would prohibit impacts that affect the viability of linkages. Compensation CMAs would be required for impacts to Mohave ground squirrel, including Mohave ground squirrel important areas.

Table IV.7-287
BLM LUPA Conservation Analysis for Mohave Ground Squirrel Important Areas – Alternative 4

Mohave Ground Squirrel Important Area Type	Available Lands (acres)	Existing Conservation[1] (acres)	NLCS (acres)[2]	ACEC (acres)	Wildlife Allocation (acres)	Total Conservation (acres)	% of Available Lands
Key Population Center	299,000	18,000	**91,000**	**152,000**	-	261,000	87%
Linkage	280,000	24,000	**22,000**	**157,000**	-	202,000	72%
Expansion Area	282,000	45,000	**50,000**	**159,000**	-	254,000	90%
Climate Change Extension	92,000	14,000	**37,000**	**8,000**	-	59,000	63%
Total	**954,000**	**101,000**	**200,000**	**476,000**	**-**	**777,000**	**81%**

[1] Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on BLM-administered land

[2] Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), on BLM-administered land

Notes: Conservation acreages reported for Existing Conservation and BLM LUPA conservation designations reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Overlaps of ACECs or Wildlife Allocations with NLCS designations are reported as NLCS designations. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Within the Plan Area, critical habitat has been designated by the USFWS for the following Covered Species: desert tortoise, southwestern willow flycatcher, desert pupfish, and Parish's daisy. For desert tortoise, approximately 92% of the desert tortoise designated critical habitat on BLM-administered lands would be conserved under Alternative 4, including 606,000 acres in existing conservation areas and 1,846,000 acres in BLM LUPA conservation designations. For southwestern willow flycatcher, approximately 95% of the southwestern willow flycatcher designated critical habitat on BLM-administered lands

would be conserved in Reserve Design Lands under Alternative 4, including 300 acres in existing conservation areas and 40 acres in BLM LUPA conservation designations. For desert pupfish, approximately 95% of the desert pupfish designated critical habitat on BLM-administered lands would be conserved in Reserve Design Lands under Alternative 4, including 20 acres in existing conservation areas and 400 acres in BLM LUPA conservation designations. For Parish's daisy, approximately 93% of the Parish's daisy designated critical habitat on BLM-administered lands would be conserved in Reserve Design Lands under Alternative 4, including 900 acres in BLM LUPA conservation designations.

Non-Covered Species Critical Habitat

Ten Non-Covered Species have Critical Habitat within BLM LUPA Lands. Table IV.7-288 shows the total amount of Critical Habitat and the amount within each LUPA conservation designation for Non-Covered Species. These conservation designations would be considered beneficial impacts for biological resources. All or a substantial portion of each species' Critical Habitat in the BLM LUPA Lands would be within one of the conservation designations. Critical Habitat for Pierson's milk-vetch and bighorn sheep occurs mostly within existing conservation, but mostly within National Conservation Lands for the other species. Critical Habitat for the Pierson's milk-vetch is managed under the Imperial Sand Dunes RAMP, which provides protections for critical habitat within conservation areas and areas designated as closed to motorized (e.g. off-highway vehicle) use.

Table IV.7-288
Critical Habitat within BLM LUPA Conservation Designations for Non-Covered Species – Alternative 4

Common Name	Acres of Critical Habitat within BLM LUPA Lands	Existing Conservation	NLCS (acres)[1]	ACEC (acres)	Wildlife Allocations (acres)	Total in Conservation
Amargosa nitrophila	1,000	0	1,000	0	0	1,000
Amargosa vole	4,000	1,000	2,000	0	0	3,000
Arroyo toad	30	0	0	0	0	0
Ash Meadows gumplant	300	0	300	0	0	300
Cushenbury buckwheat	400	0	400	30	0	430
Cushenbury milk-vetch	900	0	800	0	0	800
Cushenbury oxytheca	80	0	80	0	0	80
Lane Mountain milk-vetch	10,000	50	7,000	2,000	0	9,950

Table IV.7-288
Critical Habitat within BLM LUPA Conservation Designations for Non-Covered Species – Alternative 4

Common Name	Acres of Critical Habitat within BLM LUPA Lands	Existing Conservation	NLCS (acres)[1]	ACEC (acres)	Wildlife Allocations (acres)	Total in Conservation
Pierson's milk-vetch[2]	12,000	12,000[3]	0	0	0	3,000
Peninsular Bighorn sheep	7,000	5,000	0	400	0	5,400

1 Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), on BLM-administered land

2 NLCS and ACEC designations overlap, the entire Amargosa Valley, which contains the Amargosa vole critical habitat, is located within an ACEC.

3 Pierson's milk-vetch are protected within areas designated as closed to motorized vehicles in the Imperial Sand Dunes RAMP. The ISDRA RAMP is not considered part of the DRECP decision area.

IV.7.3.6.3 Impacts of Natural Community Conservation Plan: Alternative 4

The impacts and mitigation measures for renewable energy and transmission development of the NCCP for Alternative 4would be the same as those defined in Section IV.7.3.6.1 for the Plan-wide analysis.

As described in Section II.3.3 of Volume II, the NCCP would establish conservation designations within the Reserve Design Lands under each alternative. To reflect the conservation that would occur under the NCCP, the NCCP elements of each alternative define the following means of providing conservation within Reserve Design Lands:

- An **NCCP Conceptual Plan-Wide Reserve Design**, which defines the areas that are considered to be the highest priority for biological conservation. These priority conservation areas include both BLM lands and other lands, including private land and nonfederal public land. These priority conservation areas are consistent with those identified in the interagency plan-wide alternatives.
- A **DRECP NCCP Reserve Design**, which nested within the NCCP Conceptual Plan-Wide Reserve Design. The DRECP NCCP Reserve Design identifies those lands within BLM LUPA conservation designations that would be protected, maintained, and managed to preserve their conservation value for Covered Species for at least the duration of the NCCP. Within non-BLM lands, areas identified within the DRECP NCCP Reserve Design would be given a high priority for conservation through the purchase of private lands from willing sellers or placement of conservation easements on public lands. BLM lands and non-BLM Lands included in the DRECP NCCP Reserve Design would receive long-term protection and would be conserved and managed to preserve and enhance habitat for Covered Species.

- **Other conservation actions**, which would occur outside of the DRECP NCCP Reserve Design and NCCP Conceptual Plan-Wide Reserve Design and include the maintenance and management of all of the BLM LUPA conservation designation lands in accordance with the BLM LUPA conservation designations.

Alternative 4 includes DRECP Variance Lands which are not designated as part of reserve design envelope, including areas south of the Chocolate Mountains in eastern Imperial Borrego Valley subarea, in Rice Valley in northern Cadiz Valley and Chuckwalla Mountains subarea, and in the Silurian Valley area of the Kingston and Funeral Mountains and Mojave and Silurian Valley subareas. The loss of conservation in these DRECP Variance Lands under Alternative 4 would undermine the reserve design envelope through the uncertainties about protection and maintenance of conservation value in these areas.

The following provides the conservation analysis for the NCCP.

Landscape

Habitat Linkages

Table IV.7-289 shows the conservation of the desert linkage network under Alternative 4 for the NCCP. Conservation of the desert linkage network totals more than 2.4 million acres (71%). Approximately 203,000 acres of the desert linkage network would be inside the DRECP NCCP Reserve Design (164,000 acres on BLM Land and 39,000 acres on non-BLM land). Approximately 789,000 acres of the desert linkage network would be inside the NCCP Conceptual Plan-Wide Reserve Design and 894,000 acres would be outside the NCCP Conceptual Plan-Wide Reserve Design. In addition to conservation of the desert linkage network, CMAs provide for the avoidance and minimization of certain linkages in the DFAs (see Section IV.7.3.2.2.1).

The designation of DRECP Variance Lands scattered across the Plan Area under Alternative 4 leads to uncertainty regarding the protection and long-term viability of the habitat linkages within the reserve design envelope.

Table IV.7-289
NCCP Conservation Analysis for the Desert Linkage Network – Alternative 4

Desert Linkage Network by Ecoregion Subarea	Existing Conservation (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the DRECP NCCP Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Cadiz Valley and Chocolate Mountains	187,000	**23,000**	**161,000**	**7,000**	**38,000**	158,000	10,000	584,000
Imperial Borrego Valley	14,000	-	**37,000**	-	**1,000**	15,000	700	68,000
Kingston and Funeral Mountains	28,000	-	-	-	-	87,000	3,000	118,000
Mojave and Silurian Valley	179,000	-	**51,000**	-	**15,000**	130,000	7,000	383,000
Owens River Valley	40	-	-	-	-	11,000	800	12,000
Panamint Death Valley	109,000	**20**	**32,000**	-	**2,000**	41,000	600	184,000
Pinto Lucerne Valley and Eastern Slopes	16,000	**51,000**	**27,000**	**15,000**	**7,000**	23,000	4,000	142,000
Piute Valley and Sacramento Mountains	14,000	-	-	-	**2,000**	92,000	2,000	110,000
Providence and Bullion Mountains	144,000	-	**300**	-	**50**	195,000	9,000	348,000

Table IV.7-289
NCCP Conservation Analysis for the Desert Linkage Network – Alternative 4

Desert Linkage Network by Ecoregion Subarea	Existing Conservation (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the DRECP NCCP Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
West Mojave and Eastern Slopes	45,000	**89,000**	**128,000**	**17,000**	**84,000**	83,000	24,000	470,000
Grand Total	**736,000**	**164,000**	**436,000**	**39,000**	**150,000**	**833,000**	**61,000**	**2,419,000**

Notes: Conservation acreages reported for Existing Conservation and BLM LUPA conservation designations reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Hydrological Resources

A conservation analysis for hydrological resources is provided below, including playa, seep/spring, and the four major rivers in the Plan Area (i.e., Amargosa, Colorado, Mojave and Owens) for Alternative 4under the NCCP. Conservation of riparian areas and wetlands, which co-occur with many of these hydrological resources is provided below under Natural Communities.

Playa

Overall, approximately 183,000 acres would be conserved under Alternative 4under the NCCP. Approximately 300 acres are within the DRECP NCCP Reserve Design (approximately 40 on BLM land and approximately 300 acres on non-BLM land). Approximately 3,000 acres of the playa acreage conserved is inside NCCP Conceptual Plan-Wide Reserve Design and approximately 84,000 acres are outside the NCCP Conceptual Plan-Wide Reserve Design. Additionally, playas and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks. CMAs for playas would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided riparian or wetland natural communities.

Seep/Spring

Overall, 305 locations of the seep/spring locations would be conserved under Alternative 4 under the NCCP. Approximately 16 seep/spring locations are within the DRECP NCCP Reserve Design (9 on BLM land and 7 on non-BLM land). Approximately 40 seep/spring locations are inside NCCP Conceptual Plan-Wide Reserve Design and approximately 774 seep/spring locations are outside the NCCP Conceptual Plan-Wide Reserve Design. Seeps and springs and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks. CMAs for seep/spring locations would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided wetland natural communities.

Major Rivers

None of the major rivers are conserved within the DRECP NCCP Reserve Design. Approximately 667,000 feet of the major rivers (Amargosa, Colorado, and Mojave) are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 126,000 feet of the Amargosa River are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. Major rivers and associated Covered Species, natural communities, and

hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks.

Dune and Sand Resources

Approximately half of the dunes and sand resources would be conserved in existing conservation areas under the NCCP. Approximately 12,000 acres are within the DRECP NCCP Reserve Design (approximately 9,000 acres on BLM land and approximately 3,000 acres on non-BLM land). Approximately 80,000 acres of the dunes and sand resources are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 430,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. Dunes and sand resources and associated Covered Species, natural communities, and ecological functions would be avoided through application of the dune avoidance and minimization CMAs.

Environmental Gradients

The conservation analysis addresses four types of environmental gradients in the Plan Area: elevation, landforms, slope, and aspect. The conservation of these four environmental gradients under Alternative 4under the NCCP would follow the same overall pattern as Plan-wide conservation.

Natural Communities

Table IV.7-290 shows the conservation to natural communities under the NCCP. A conservation summary by general community is provided below in comparison to Plan-wide conservation discussed in Section IV.7.3.2.1.2.

California forest and woodlands

Overall, approximately 62,000 acres (41%) of California forest and woodlands would be conserved under Alternative 4under the NCCP. Approximately 2,000 acres are within the DRECP NCCP Reserve Design (approximately 2,000 acres on BLM land and approximately 200 acres on non-BLM land). Approximately 2,000 acres of California forest and woodlands are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 34,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. In addition to conservation of California forest and woodlands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 31,000 acres (28%) of chaparral and coastal scrubs would be conserved under Alternative 4under the NCCP. Approximately 3,000 acres are within the DRECP NCCP Reserve Design (approximately 2,000 acres on BLM land and approximately 1,000 acres on non-BLM land). Approximately 6,000 acres of chaparral and coastal scrubs are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 11,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. In addition to conservation of chaparral and coastal scrubs, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert conifer woodlands

Overall, approximately 185,000 acres (65%) of desert conifer woodlands would be conserved under Alternative 4under the NCCP. Approximately 2,000 acres are within the DRECP NCCP Reserve Design (approximately 2,000 acres on BLM land and approximately 300 acres on non-BLM land). Approximately 2,000 acres of desert conifer woodlands are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 24,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. In addition to conservation of desert conifer woodlands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert outcrop and badlands

Overall, approximately 1,237,000 acres (77%) of desert outcrop and badlands would be conserved under Alternative 4under the NCCP. Approximately 13,000 acres are within the DRECP NCCP Reserve Design (approximately 11,000 acres on BLM land and approximately 2,000 acres on non-BLM land). Approximately 151,000 acres of desert outcrop and badlands are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 284,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. In addition to conservation of desert outcrop and badlands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert scrubs

Overall, approximately 9,430,000 acres (71%) of desert scrubs would be conserved under Alternative 4under the NCCP. Approximately 293,000 acres are within the DRECP NCCP Reserve Design (approximately 230,000 acres on BLM land and approximately 63,000 acres on non-BLM land). Approximately 1,325,000 acres of desert scrubs are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 2,476,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. In addition to conservation of desert scrubs, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Dunes

Overall, approximately 207,000 acres (73%) of dunes would be conserved under Alternative 4 under the NCCP. Approximately 400 acres are within the DRECP NCCP Reserve Design (approximately 100 acres on BLM land and approximately 300 acres on non-BLM land). Approximately 27,000 acres of dunes are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 33,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. In addition, CMA application would require avoidance of all dunes and prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

Grasslands

Overall, approximately 52,000 acres (22%) of grasslands would be conserved under Alternative 4 under the NCCP. Approximately 6,000 acres are within the DRECP NCCP Reserve Design (approximately 5,000 acres on BLM land and approximately 700 acres on non-BLM land). Approximately 14,000 acres of grasslands are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 15,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. In addition to conservation of grasslands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Riparian

Overall, approximately 621,000 acres (63%) of riparian communities would be conserved under Alternative 4under the NCCP. Approximately 10,000 acres are within the DRECP NCCP Reserve Design (approximately 8,000 acres on BLM land and approximately 2,000

acres on non-BLM land). Approximately 172,000 acres of riparian are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 171,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. In addition, CMA application would require avoidance of and setbacks from all riparian communities as well as to other CMAs that would benefit riparian communities beyond simply conservation.

Wetlands

Overall, approximately 440,000 acres (51%) of wetland communities would be conserved under Alternative 4under the NCCP. Approximately 21,000 acres are within the DRECP NCCP Reserve Design (approximately 15,000 acres on BLM land and approximately 6,000 acres on non-BLM land). Approximately 82,000 acres of wetlands are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 169,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. In addition, CMA application would require avoidance of and setbacks from Arid West freshwater emergent marsh and Californian warm temperate marsh/seep as well as other CMAs that would benefit riparian communities beyond simply conservation.

Table IV.7-290
NCCP Conservation Analysis for Natural Communities – Alternative 4

Natural Community	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
California forest and woodland								
Californian broadleaf forest and woodland	1,000	0	20	0	10	9,000	10,000	20,000
Californian montane conifer forest	25,000	2,000	90	200	0	9,000	6,000	42,000
Chaparral and coastal scrub community (Cismontane scrub)								
Californian mesic chaparral	20	0	0	0	0	300	600	900
Californian pre-montane chaparral	0	0	0	0	0	300	200	500
Californian xeric chaparral	3,000	30	10	0	10	700	3,000	7,000
Central and south coastal California seral scrub	0	0	0	0	0	10	30	40
Central and South Coastal Californian coastal sage scrub	2,000	2,000	2,000	1,000	700	2,000	2,000	12,000

Table IV.7-290
NCCP Conservation Analysis for Natural Communities – Alternative 4

Natural Community	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Western Mojave and Western Sonoran Desert borderland chaparral	9,000	0	0	0	0	70	900	10,000
Desert conifer woodlands								
Great Basin Pinyon - Juniper Woodland	159,000	2,000	200	300	200	12,000	11,000	185,000
Desert outcrop and badlands								
North American warm desert bedrock cliff and outcrop	802,000	11,000	117,000	2,000	21,000	266,000	17,000	1,237,000
Desert scrub								
Arizonan upland Sonoran desert scrub	44,000	0	0	0	400	2,000	400	47,000
Intermontane deep or well-drained soil scrub	30,000	13,000	27,000	2,000	2,000	8,000	2,000	82,000
Intermontane seral shrubland	1,000	2,000	800	500	1,000	700	1,000	7,000

Table IV.7-290
NCCP Conservation Analysis for Natural Communities – Alternative 4

Natural Community	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Inter-Mountain Dry Shrubland and Grassland	110,000	22,000	2,000	2,000	3,000	80,000	13,000	232,000
Intermountain Mountain Big Sagebrush Shrubland and steppe	9,000	0	60	0	40	12,000	7,000	28,000
Lower Bajada and Fan Mojavean - Sonoran desert scrub	4,561,000	161,000	683,000	56,000	262,000	2,023,000	137,000	7,884,000
Mojave and Great Basin upper bajada and toeslope	838,000	32,000	33,000	3,000	8,000	108,000	25,000	1,046,000
Shadscale - saltbush cool semi-desert scrub	38,000	40	2,000	10	7,000	41,000	17,000	104,000
Southern Great Basin semi-desert grassland	0	0	0	0	0	40	0	40

Table IV.7-290
NCCP Conservation Analysis for Natural Communities – Alternative 4

Natural Community	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Dunes								
North American warm desert dunes and sand flats	146,000	100	24,000	300	2,000	28,000	5,000	207,000
Grassland								
California Annual and Perennial Grassland	23,000	5,000	2,000	700	6,000	5,000	9,000	51,000
California annual forb/grass vegetation	400	80	400	60	300	200	200	2,000
Riparian								
Madrean Warm Semi-Desert Wash Woodland/Scrub	195,000	200	91,000	20	23,000	137,000	8,000	455,000
Mojavean semi-desert wash scrub	7,000	700	4,000	300	1,000	4,000	1,000	17,000
Sonoran-Coloradan semi-desert wash woodland/scrub	70,000	8,000	24,000	2,000	5,000	15,000	2,000	124,000

Table IV.7-290
NCCP Conservation Analysis for Natural Communities – Alternative 4

Natural Community	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Southwestern North American riparian evergreen and deciduous woodland	500	10	10	50	1,000	300	500	3,000
Southwestern North American riparian/wash scrub	7,000	0	4,000	0	8,000	800	2,000	22,000
Wetland								
Arid West freshwater emergent marsh	40	0	0	0	800	0	400	1,000
Californian warm temperate marsh/seep	0	0	0	0	0	0	80	80
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	136,000	40	4,000	200	900	61,000	5,000	207,000
Open Water	23,000	0	10	0	1,000	70	23,000	47,000
Playa	400	0	0	0	2,000	24,000	10,000	36,000

Table IV.7-290
NCCP Conservation Analysis for Natural Communities – Alternative 4

Natural Community	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Southwestern North American salt basin and high marsh	31,000	15,000	32,000	5,000	20,000	36,000	8,000	149,000
Wetland	30	0	0	200	20	10	400	700
Other Land Cover								
Agriculture	6,000	80	600	400	2,000	100	3,000	12,000
Developed and Disturbed Areas	3,000	30	400	20	200	1,000	2,000	7,000
Not Mapped	200	0	30	0	30	20	400	700
Rural	900	10	50	100	1,000	100	10,000	13,000
Total	**7,279,000**	**276,000**	**1,052,000**	**76,000**	**382,000**	**2,887,000**	**345,000**	**12,297,000**

[1] Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs)

Notes: Conservation acreages reported reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Covered Species Habitat

Table IV.7-291 shows the conservation of Covered Species modeled habitat under Alternative 4 before the application of CMAs under the NCCP. Generally, the percent conservation of Covered Species modeled habitat in available lands is highly variable, ranging from 1% for greater sandhill crane (primarily found in agricultural areas) to 82% for bighorn sheep mountain habitat.

None of the modeled habitat for flat-tailed horned lizard and Tehachapi slender salamander is inside the DRECP NCCP Reserve Design. Less than 5% each of the total suitable habitats for Agassiz's desert tortoise and Mojave fringe-toed lizard are inside the DRECP NCCP Reserve Design. None of the suitable habitat for Tehachapi slender salamander is inside the NCCP Conceptual Plan-Wide Reserve Design. Flat-tailed horned lizard is the only amphibian/reptile species with a substantial acreage of suitable habitat inside the NCCP Conceptual Plan-Wide Reserve Design. About 44% of the conserved suitable habitat for Mojave fringe-toed lizard is outside the NCCP Conceptual Plan-Wide Reserve Design. All of the conserved suitable habitat for Tehachapi slender salamander outside of existing conservation areas is outside the NCCP Conceptual Plan-Wide Reserve Design. The siting of the DFAs under Alternative 4 largely avoids habitat for Mojave fringe-toed lizard and Tehachapi slender salamander, and CMAs require avoidance of and setbacks from riparian habitat, wetland habitat, and dune habitat would further avoid and minimize the impacts on these species.

California condor has the greatest proportion of its conserved suitable habitat conserved inside the DRECP NCCP Reserve Design compared to other bird species, including California black rail, Gila woodpecker, greater sandhill crane, western yellow-billed cuckoo, and Yuma clapper rail, which have no suitable habitat conserved inside the DRECP NCCP Reserve Design. Conservation of bird species habitat conserved inside the NCCP Conceptual Plan-Wide Reserve Design ranges from 6% of conserved suitable habitat for Bendire's thrasher to 49% of conserved suitable habitat for burrowing owl. Conservation outside of the NCCP Conceptual Plan-Wide Reserve Design ranges from 3% of conserved greater sandhill crane suitable modeled habitat to 53% of conserved California condor suitable modeled habitat. Conservation of bird species associated primarily with wetland and riparian habitats (i.e., California black rail, least Bell's vireo, southwestern willow flycatcher, tricolored blackbird, western yellow-billed cuckoo, and Yuma clapper rail) would be augmented by CMAs requiring avoidance of and setbacks from riparian and wetland habitats. In addition to conservation of suitable habitat, CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs.

None of the modeled suitable habitat for fish Covered Species is inside the DRECP NCCP Reserve Design. Approximately 10% of the modeled suitable habitat for desert pupfish and

Mojave tui chub is inside the NCCP Conceptual Plan-Wide Reserve Design. While 50% of the conserved suitable habitat for desert pupfish is outside of the NCCP Conceptual Plan-Wide Reserve Design, none of the conserved suitable habitat for Mohave tui chub is outside of the NCCP Conceptual Plan-Wide Reserve Design. About 60% of the conserved suitable habitat for Owens pupfish and Owens tui chub is inside the NCCP Conceptual Plan-Wide Reserve Design and about 30% is outside. Avoidance and setback provisions for managed wetlands and agricultural drains would conserve wetland and riparian features within the agricultural matrix and provide conservation benefits to desert pupfish.

Only 1-3% of the conserved suitable habitat for bat Covered Species and bighorn sheep is inside the DRECP NCCP Reserve Design while 14% of conserved suitable habitat for Mohave ground squirrel is inside the DRECP NCCP Reserve Design. There is also 59% of the conserved suitable habitat for Mohave ground squirrel inside the NCCP Conceptual Plan-Wide Reserve Design (23% outside). Conserved suitable habitat for bat Covered Species are 6-14% inside the NCCP Conceptual Plan-Wide Reserve Design (19-30% outside). Approximately 6-8% of the conserved suitable habitat for bighorn sheep (inter-mountain and mountain habitat) is inside the NCCP Conceptual Plan-Wide Reserve Design while 19-28% is outside of it. The siting of the DFAs under Alternative 4 largely avoid habitat for bighorn sheep. In addition to conservation of suitable habitat for covered mammal species, the CMAs require avoidance of and setbacks from riparian and wetland habitat that would reduce impacts on these habitats used by Mohave ground squirrel, California leaf-nosed bat, pallid bat, and Townsend's big-eared bat.

Conservation of suitable habitat for plant species inside the DRECP NCCP Reserve Design ranges from 0% for triple-ribbed milk-vetch to 34% for Barstow woolly sunflower. Conservation of suitable habitat for plant species inside the NCCP Conceptual Plan-Wide Reserve Design ranges from 0% for triple-ribbed milk-vetch to 92% for Barstow woolly sunflower. In addition to the conservation of modeled suitable habitat, the CMAs require surveys for plant Covered Species for all Covered Activities, and the CMAs requiring avoidance of and setbacks from occupied habitat would further reduce the impacts on these species.

In addition to conservation of suitable habitat for Covered Species, compensation CMAs would offset habitat loss for all Covered Species.

For Agassiz's desert tortoise, desert tortoise important areas were identified that include tortoise conservation areas (TCAs), desert tortoise linkages, and desert tortoise high priority habitat (see desert tortoise BGOs in Appendix C). Table IV.7-292 provides a conservation analysis for these desert tortoise important areas under the NCCP, organized by desert tortoise Recovery Units: Colorado Desert, Eastern Mojave, and Western Mojave. Overall, approximately 215,000 acres of the desert tortoise important areas are inside the

DRECP NCCP Reserve Design (158,000 acres on BLM land and 57,000 acres on non-BLM land). Approximately 1,163,000 acres of desert tortoise important areas are inside the NCCP Conceptual Plan-Wide Reserve Design and 1,985,000 acres are outside of it. CMAs would require avoidance of TCAs, except for impacts associated with transmission or impacts in disturbed portions of TCAs. Additionally, the CMAs would prohibit impacts that affect the viability of desert tortoise linkages. Compensation CMAs would be required for impacts to desert tortoise, including desert tortoise important areas. The designation of DRECP Variance Lands scattered across the Plan Area under Alternative 4 leads to uncertainty regarding the protection and long-term viability of the linkage habitat for desert tortoise within the reserve design envelope.

For Mohave ground squirrel, Mohave ground squirrel important areas were identified that include key population centers, linkages, expansion areas, and climate change extension areas (see Mohave ground squirrel BGOs in Appendix C). Table IV.7-293 provides a conservation analysis for these Mohave ground squirrel important areas under the NCCP. Approximately 182,000 acres of the Mohave ground squirrel important areas are inside the DRECP NCCP Reserve Design (144,000 acres on BLM land and 38,000 acres on non-BLM land). Approximately 606,000 acres of Mohave ground squirrel important areas are inside the NCCP Conceptual Plan-Wide Reserve Design and 326,000 acres are outside of it. The CMAs would prohibit impacts that affect the viability of linkages. Compensation CMAs would be required for impacts to Mohave ground squirrel, including Mohave ground squirrel important areas.

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Table IV.7-291
NCCP Conservation Analysis for Covered Species Habitat – Alternative 4

Species	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Amphibion/Reptile								
Agassiz's desert tortoise	3,711,000	193,000	648,000	62,000	300,000	2,013,000	147,000	7,075,000
Flat-tailed horned lizard	151,000	-	223,000	-	23,000	15,000	4,000	417,000
Mojave fringe-toed lizard	403,000	8,000	10,000	2,000	5,000	318,000	21,000	767,000
Tehachapi slender salamander	300	-	-	-	-	6,000	7,000	13,000
Bird								
Bendire's thrasher	1,196,000	51,000	34,000	11,000	8,000	268,000	41,000	1,608,000
Burrowing owl	479,000	120,000	489,000	41,000	260,000	359,000	113,000	1,862,000
California black rail	21,000	-	5,000	-	5,000	3,000	2,000	37,000
California condor	81,000	40,000	6,000	8,000	5,000	92,000	67,000	299,000
Gila woodpecker	10,000	-	5,000	-	3,000	7,000	300	26,000
Golden eagle–foraging	5,518,000	199,000	587,000	39,000	155,000	1,725,000	145,000	8,369,000
Golden eagle–nesting	2,689,000	57,000	153,000	10,000	25,000	535,000	78,000	3,548,000
Greater sandhill crane	6,000	-	600	-	2,000	60	200	9,000
Least Bell's vireo	86,000	1,000	6,000	900	14,000	21,000	9,000	138,000
Mountain plover	7,000	200	2,000	600	6,000	500	7,000	23,000
Southwestern willow flycatcher	18,000	2,000	3,000	200	15,000	13,000	14,000	65,000
Swainson's hawk	24,000	5,000	11,000	700	36,000	13,000	52,000	142,000
Tricolored blackbird	11,000	2,000	800	300	9,000	1,000	8,000	32,000
Western yellow-billed cuckoo	15,000	20	2,000	-	21,000	3,000	8,000	49,000
Yuma clapper rail	10,000	-	600	-	2,000	700	400	13,000
Fish								
Desert pupfish	900	-	90	-	10	200	300	1,000
Mohave tui chub	200	-	-	-	20	-	-	200
Owens pupfish	600	-	-	-	3,000	600	1,000	5,000
Owens tui chub	700	-	-	-	3,000	500	1,000	5,000
Mammal								
Bighorn sheep – inter-mountain habitat	1,904,000	34,000	164,000	9,000	27,000	794,000	46,000	2,978,000
Bighorn sheep – mountain habitat	4,085,000	68,000	211,000	20,000	35,000	928,000	78,000	5,425,000
California leaf-nosed bat	3,138,000	49,000	372,000	11,000	78,000	1,499,000	96,000	5,244,000

Table IV.7-291
NCCP Conservation Analysis for Covered Species Habitat – Alternative 4

Species	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservotion Designotions*	*Biologicol Conservotion Plonning Areos on Non-BLM Londs*	
Mohave ground squirrel	216,000	135,000	317,000	41,000	228,000	220,000	67,000	1,224,000
Pallid bat	6,836,000	250,000	994,000	69,000	356,000	2,738,000	268,000	11,511,000
Townsend's big-eared bat	5,879,000	219,000	860,000	54,000	307,000	2,397,000	281,000	9,998,000
Plont								
Alkali mariposa-lily	200	700	-	70	30	10	8,000	9,000
Bakersfield cactus	20,000	21,000	600	1,000	900	30,000	12,000	86,000
Barstow woolly sunflower	3,000	25,000	37,000	9,000	22,000	2,000	2,000	101,000
Desert cymopterus	7,000	1,000	41,000	1,000	36,000	11,000	9,000	107,000
Little San Bernardino Mountains linanthus	87,000	5,000	-	2,000	-	19,000	9,000	122,000
Mojave monkeyflower	27,000	7,000	67,000	2,000	11,000	4,000	400	118,000
Mojave tarplant	48,000	23,000	2,000	2,000	3,000	53,000	10,000	142,000
Owens Valley checkerbloom	13,000	300	10	10	8,000	2,000	12,000	35,000
Parish's daisy	82,000	13,000	90	4,000	50	20,000	5,000	124,000
Triple-ribbed milk-vetch	5,000	-	-	-	-	-	400	5,000

[1] Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs)

Notes: Conservation acreages reported reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Table IV.7-292
NCCP Conservation Analysis for Desert Tortoise – Alternative 4

Recovery Unit	Desert Tortoise Important Areas	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
			Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Colorado Desert	High Priority Habitat	157,000	14,000	-	5,000	-	65,000	5,000	246,000
	Linkage	126,000	11,000	-	1,000	-	201,000	11,000	350,000
	TCA	1,544,000	35,000	283,000	6,000	53,000	820,000	33,000	2,775,000
Colorado Desert Total		*1,827,000*	*60,000*	*283,000*	*12,000*	*53,000*	*1,086,000*	*49,000*	*3,371,000*
Eastern Mojave	Linkage	421,000	-	-	-	-	202,000	9,000	633,000
	TCA	1,758,000	-	-	-	-	159,000	13,000	1,929,000
Eastern Mojave Total		*2,179,000*	-	-	-	-	*361,000*	*22,000*	*2,562,000*
Western Mojave	Linkage	391,000	30,000	25,000	14,000	21,000	140,000	20,000	642,000
	TCA	1,061,000	68,000	418,000	31,000	147,000	285,000	20,000	2,030,000
Western Mojave Total		*1,452,000*	*98,000*	*444,000*	*45,000*	*168,000*	*425,000*	*41,000*	*2,672,000*
Grand Total		**5,458,000**	**158,000**	**727,000**	**57,000**	**221,000**	**1,873,000**	**112,000**	**8,606,000**

[1] Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs)

Notes: Conservation acreages reported reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Table IV.7-293
NCCP Conservation Analysis for Mohave Ground Squirrel Important Areas – Alternative 4

Mohave Ground Squirrel Important Area Type	Existing Conservation[1] (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	*Outside the DRECP NCCP Reserve Design*	*Inside the DRECP NCCP Reserve Design*	*Outside the DRECP NCCP Reserve Design*	*BLM LUPA Conservation Designations*	*Biological Conservation Planning Areas on Non-BLM Lands*	
Key Population Center	47,000	86,000	**68,000**	**20,000**	38,000	89,000	13,000	360,000
Linkage	30,000	17,000	**71,000**	**8,000**	33,000	91,000	7,000	257,000
Expansion Area	77,000	27,000	**111,000**	**9,000**	93,000	71,000	7,000	395,000
Climate Change Extension	28,000	14,000	**20**	**500**	9,000	30,000	19,000	101,000
Total	**181,000**	**144,000**	**250,000**	**38,000**	**174,000**	**281,000**	**45,000**	**1,113,000**

[1] Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs)

Notes: Conservation acreages reported reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

IV.7.3.6.4 Impacts of General Conservation Plan: Alternative 4

IV.7.3.6.4.1 General Conservation Plan Impacts and Mitigation Measures from Renewable Energy and Transmission Development

The impacts of the GCP for Alternative 4 would be similar to those defined in Section IV.7.3.2.1 for the Plan-wide analysis, but they would occur on nonfederal lands only. On nonfederal lands under the GCP, Alternative 4 includes DFAs (approximately 1,332,000 acres) and transmission corridors where approximately 119,000 acres of ground disturbance related impacts and operational impacts would occur.

Impact BR-1: Siting, construction, decommissioning, and operational activities would result in loss of native vegetation.

Table IV.7-294 shows the impacts to natural communities under Alternative 4 under the GCP. An effects summary by general community is provided below in relation to the Plan-wide effects analysis provided in Section IV.7.3.2.1.1. Appendix R2 provides a detailed analysis of natural community effects by ecoregion subarea.

<u>California forest and woodlands</u>

Overall, approximately 100 acres (0.1%) of California forest and woodlands would be impacted under Alternative 4 within the GCP, about the same as the Plan-wide effects. Most of the impacts are from solar development in the West Mojave and Eastern Slopes subarea. The same CMAs that would be applied Plan-wide to reduce impacts to this general community and the plant and wildlife species it supports would also be applied under the GCP. This includes CMAs that address roosting covered bat species (AM-DFA-BAT-1, AM-RES-RL-BAT-1, and AM-RES-RL-BAT-2), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs would offset that effect (COMP-1 and COMP-2).

<u>Chaparral and coastal scrubs (Cismontane scrub)</u>

Overall, approximately 1,000 acres (1.8%) of chaparral and coastal scrubs would be impacted under Alternative 4 within the GCP Area, which is approximately half of the Plan-wide effects to this general community. Most of the impacts are from solar development in the West Mojave and Eastern Slopes subarea, but there would also be impacts in the Pinto Lucerne Valley and Eastern Slopes. The same CMAs that would be applied Plan-wide to reduce impacts to this general community and the plant and wildlife species it supports would also be applied under the GCP. This includes CMAs that address breeding, nesting, or roosting species (AM-DFA-BAT-1, AM-RES-RL-BAT-1, AM-RES-RL-

BAT-2, AM-DFA-PLANT-1 through AM-DFA-PLANT-3, and AM-RES-RL-PLANT-1 through AM-RES-RL-PLANT-3), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs would offset that effect (COMP-1 and COMP-2).

Desert conifer woodlands

Overall, approximately 1,000 acres (1.1%) of desert conifer woodlands would be impacted under Alternative 4 under the GCP, which is about the same as the Plan-wide effects. Most of the impacts are from solar development in the West Mojave and Eastern Slopes subarea, but there would also be impacts in the Pinto Lucerne Valley and Eastern Slopes. The same CMAs that would be applied Plan-wide to reduce impacts to this general community and the plant and wildlife species it supports would also be applied under the GCP. This includes CMAs that address roosting covered bat species (AM-DFA-BAT-1, AM-RES-RL-BAT-1, and AM-RES-RL-BAT-2), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs would offset that effect (COMP-1 and COMP-2).

Desert outcrop and badlands

Overall, approximately 2,000 acres (0.7%) of desert outcrop and badlands would be impacted under Alternative 4 under the GCP, which constitutes less than 20% of the Plan-wide effects. Most of the impacts would be in the Imperial Borrego Valley and Cadiz Valley and Chocolate Mountains subareas. Less than 200 acres of impacts to desert outcrop and badlands would occur in other subareas. The same CMAs that would be applied Plan-wide to reduce impacts to this general community and the plant and wildlife species it supports would also be applied under the GCP. This includes CMAs that address breeding, nesting, or roosting species (AM-DFA-BAT-1, AM-RES-RL-BAT-1, and AM-RES-RL-BAT-2), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs would offset that effect (COMP-1 and COMP-2).

Desert scrubs

Overall, approximately 51,000 acres (1.7%) of desert scrubs would be impacted under Alternative 4 under the GCP, which is over half of the Plan-wide effects. Almost half of the impacts to desert scrubs under the GCP are in the West Mojave and Eastern Slopes subarea, but impacts occur in all subareas except for the Piute Valley and Sacramento Mountains subarea. The same CMAs that would be applied Plan-wide to reduce impacts to this general community and the plant and wildlife species it supports would also be applied under the GCP. These include avoidance, setbacks, and/or suitable habitat impact

caps for flat-tailed horned lizard (AM-RES-RL-ICS-8 and AM-RES-RL-ICS-9 and AM-DFA-ICS-16), Agassiz's desert tortoise (AM-DFA-ICS-3 through AM-DFA-ICS-15, and AM-RES-RL-ICS-1 through AM-RES-RL-ICS-7), Mohave ground squirrel (AM-DFA-ICS-36 through AM-DFA-ICS-43 and AM-RES-BLM-ICS-14 through AM-RES-BLM-ICS-17), bat Covered Species (AM-DFA-BAT-1, AM-RES-RL-BAT-1, and AM-RES-RL-BAT-2), and plant Covered Species (AM-DFA-PLANT-1 through AM-DFA-PLANT-3, AM-RES-BLM-PLANT-1, and AM-RES-RL-PLANT-1 through AM-RES-RL-PLANT-3). Furthermore, soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) CMAs would be implemented that would help avoid and minimize these effects and compensation CMAs would offset the effect (COMP-1 and COMP-2).

Dunes

Application of the CMAs would require avoidance of dune communities to the maximum extent feasible in DFAs so there would be no impacts to dunes under the GCP. In addition, the same CMAs that would be applied Plan-wide to reduce impacts to this general community and the plant and wildlife species it supports would also be applied under the GCP. This includes the implementation of dune avoidance and minimization CMAs (AM-DFA-DUNE-1 through AM-DFA-DUNE-3, and AM-RES-RL-DUNE-1 through AM-RES-RL-DUNE-3) as well as compensation CMAs that would offset any impacts determined to be unavoidable (COMP-1 and COMP-2).

Grasslands

Overall, approximately 7,000 acres (3.6%) of grasslands would be impacted under Alternative 4 under the GCP, which is about 1,000 acres less than of the Plan-wide effects. Most impacts are from solar development in the West Mojave and Eastern Slope subarea, but would also occur from wind development and transmission and occur in the Cadiz Valley and Chocolate Mountains, Mojave and Silurian Valley, and Pinto Lucerne Valley and Eastern Slopes subareas. In addition, the same CMAs that would be applied Plan-wide to reduce impacts to this general community and the plant and wildlife species it supports would also be applied under the GCP. This includes CMAs that address breeding, nesting, or roosting species (AM-DFA-AG-2), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs would offset that effect (COMP-1 and COMP-2).

Riparian

Application of the CMAs would require avoidance of riparian communities to the maximum extent feasible in DFAs so there would be no impacts to riparian communities under the GCP. In addition, the same CMAs that would be applied Plan-wide to reduce impacts to this general community and the plant and wildlife species it supports would

also be applied under the GCP. This includes CMAs for avoidance and minimization from riparian habitat and the Covered Species associated with riparian habitat (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9) as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

Wetlands

Overall, approximately 6,000 acres (1.8%) of wetlands would be impacted under Alternative 4 under the GCP, which is over half of the Plan-wide effects. Impacts would be mostly from renewable energy development on open water at the Salton Sea in the Imperial Borrego Valley subarea. The same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied under the GCP, including avoidance of Arid West freshwater emergent marsh and Californian warm temperate marsh/seep (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9) as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

Table IV.7-294
GCP Impact Analysis for Natural Communities – Alternative 4

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
California forest and woodland						
Californian broadleaf forest and woodland	61,000	30	0	0	0	40
Californian montane conifer forest	44,000	60	10	0	0	70
Chaparral and coastal scrub community (Cismontane scrub)						
Californian mesic chaparral	3,000	0	0	0	0	0
Californian pre-montane chaparral	1,000	0	0	0	0	0
Californian xeric chaparral	19,000	0	0	0	10	10
Central and south coastal California seral scrub	1,000	20	0	0	0	30
Central and South Coastal Californian coastal sage scrub	42,000	1,000	100	0	70	1,000
Western Mojave and Western Sonoran Desert borderland chaparral	15,000	0	0	0	10	20
Desert conifer woodlands						
Great Basin Pinyon - Juniper Woodland	104,000	900	100	0	80	1,000

Table IV.7-294
GCP Impact Analysis for Natural Communities – Alternative 4

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Desert outcrop and badlands						
North American warm desert bedrock cliff and outcrop	220,000	800	10	200	500	2,000
Desert Scrub						
Arizonan upland Sonoran desert scrub	8,000	0	0	0	0	0
Intermontane deep or well-drained soil scrub	24,000	400	30	0	30	400
Intermontane seral shrubland	68,000	3,000	100	0	50	3,000
Inter-Mountain Dry Shrubland and Grassland	152,000	900	90	20	100	1,000
Intermountain Mountain Big Sagebrush Shrubland and steppe	48,000	10	0	0	0	20
Lower Bajada and Fan Mojavean - Sonoran desert scrub	2,254,000	30,000	3,000	900	5,000	39,000
Mojave and Great Basin upper bajada and toeslope	228,000	3,000	300	0	200	4,000
Shadscale - saltbush cool semi-desert scrub	157,000	3,000	40	300	400	4,000
Southern Great Basin semi-desert grassland	70	0	0	0	0	0
Dunes						
North American warm desert dunes and sand flats	34,000	0	0	0	0	0
Grassland						
California Annual and Perennial Grassland	196,000	6,000	300	0	300	7,000
California annual forb/grass vegetation	7,000	300	10	0	0	300
Riparian						
Madrean Warm Semi-Desert Wash Woodland/Scrub	96,000	0	0	0	0	0
Mojavean semi-desert wash scrub	17,000	0	0	0	0	0
Riparian	600	0	0	0	0	0

Table IV.7-294
GCP Impact Analysis for Natural Communities – Alternative 4

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Sonoran-Coloradan semi-desert wash woodland/scrub	34,000	0	0	0	0	0
Southwestern North American riparian evergreen and deciduous woodland	6,000	0	0	0	0	0
Southwestern North American riparian/wash scrub	47,000	0	0	0	0	0
Wetland						
Arid West freshwater emergent marsh	4,000	0	0	0	0	0
Californian warm temperate marsh/seep	400	0	0	0	0	0
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	36,000	500	30	0	80	600
Open Water	114,000	2,000	0	1,000	400	4,000
Playa	52,000	0	0	0	10	10
Southwestern North American salt basin and high marsh	112,000	1,000	40	0	90	1,000
Wetland	8,000	100	0	0	40	100
Other Land Cover – Developed and Disturbed Areas						
Agriculture	693,000	33,000	400	8,000	6,000	48,000
Developed and Disturbed Areas	399,000	90	0	40	1,000	1,000
Not Mapped	4,000	10	0	0	0	10
Rural	110,000	1,000	10	400	400	2,000
Total	**5,420,000**	**89,000**	**4,000**	**11,000**	**14,000**	**119,000**

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
[2] Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Rare natural community alliances could be impacted under Alternative 4 on nonfederal lands, including impacts to Joshua tree woodland. CMAs would be implemented to address

breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection that would help avoid and minimize these effects on rare natural communities. Additionally, AM-DFA-ONC-1 and -2 would require inventorying and preserving or transplanting cactus, yuccas, and succulents. While the compensation CMAs would offset the lost habitat acreage of these impacts, the compensation CMAs do not specifically require the replacement of or mitigation for specific rare natural community alliances. After application of the CMAs, impacts to rare natural communities from Alternative 4 would be adverse and would require mitigation.

Impact BR-2: Siting, construction, decommissioning, and operational activities would result in adverse effects to jurisdictional waters and wetlands.

Siting, construction, decommissioning, and operations of Covered Activities have the potential to result in adverse effects to federal or state jurisdictional waters and wetlands. In the Plan Area, jurisdictional waters and wetlands would likely include the riparian and wetland communities analyzed under Impact BR-1 and may also include other features including playas, seeps/springs, major rivers, and ephemeral drainage networks.

All Covered Activities would be required to comply with existing, applicable federal and state laws and regulations related to jurisdictional waters and wetlands. Additionally, all impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep wetlands would be avoided under Alternative 4 through application of the wetland CMAs, including wetland setbacks (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). Approximately 6,000 acres of other wetland communities would be impacted under Alternative 4. See the analysis for the loss of native vegetation provided under BR-1 for a discussion of these potential impacts. All or a portion of the estimated wetland impacts could result in adverse effects to jurisdictional waters and wetlands without compensation. Compensation CMAs would offset any impacts determined to be unavoidable.

Additionally, playas, seeps/springs, major rivers, and ephemeral drainages are waters and wetland features that provide hydrological functions and may be determined to be jurisdictional waters and wetlands. Adverse effects to these features would have the potential to impact jurisdictional waters and wetlands.

<u>Playa</u>

Less than 1% (approximately 500 acres) of playa would be impacted by Covered Activities under Alternative 4 within the GCP. The majority of impacts would be associated with solar (approximately 300 acres), with 30 acres of wind impacts and approximately200 acres of transmission impacts. Ecoregion subareas of potential impacts to playas include the Cadiz Valley and Chocolate Mountains, Mojave and Silurian Valley, Owens River Valley, Pinto

Lucerne Valley and Eastern Slopes, Providence and Bullion Mountains, and West Mojave and Eastern Slopes subareas.

Avoidance of impacts to wetland communities including playas would benefit Covered Species that utilize these communities. In addition, application of species-specific CMAs would help avoid and minimize impacts to species associated with playas (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). CMAs would also require compliance with all applicable laws and regulations pertaining to wetlands and waters, including playas (AM-PW-9 and AM-LL-2). Compensation CMAs would offset impacts to these features (COMP-1 and COMP-2).

Seep/Spring

Seeps occur within DFAs and transmission corridors and potential impacts to seep/spring have the potential to occur under Alternative 4 within the GCP in the following ecoregion subareas: Imperial Borrego Valley, Mojave and Silurian Valley, Owens River Valley, Pinto Lucerne Valley and Eastern Slopes, and West Mojave and Eastern Slopes. Impacts to seeps and springs would be adverse absent implementation of avoidance measures. Impacts to seep/spring locations and associated Covered Species and hydrological functions would be avoided through adherence to avoidance and minimization CMAs, including habitat assessments and avoidance of seeps with 0.25 mile setbacks (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). Compensation CMAs would offset any impacts determined to be unavoidable (COMP-1 and COMP-2).

Major Rivers

Under Alternative 4 within the GCP, there would no direct impacts to any of the four major rivers within the Plan Area – Amargosa, Colorado, Mojave, and Owens Rivers, but there could be indirect effects associated with modification of hydrology resulting from development. Riparian CMAs would require avoidance of these features with setbacks (AM-DFA-RIPWET-1).

Ephemeral Drainages

Ephemeral drainages occur throughout the Plan Area, and some of these features could be determined to state or federal jurisdictional waters. Impacts to ephemeral drainages would likely occur from Covered Activities. Application of riparian avoidance CMAs (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9) would avoid and minimize impacts to a portion of the ephemeral drainages within DFAs. Additionally, all Covered Activities would be required to comply with existing, applicable federal and state laws and regulations related to jurisdictional waters and wetlands.

Impact BR-3: Siting, construction, decommissioning, and operational activities would result in degradation of vegetation.

Siting, construction, and operational Covered Activities would result in the degradation of vegetation through the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants. The degree to which these factors contribute to the degradation of vegetation corresponds to the distribution of Covered Activities within the GCP that would result in dust, fire, and introduction of invasive plants or that would use dust suppressants and implement fire management. The propensity for vegetation to be at risk of degradation was determined by the overlap between natural community models and the likely distribution of Covered Activities across subareas in the GCP.

Based on the planned renewable energy capacity, the greatest amount of terrestrial operational impacts within the GCP would occur in the West Mojave and Eastern Slopes and the Imperial Borrego Valley subareas, as shown in Table IV.7-295. As a result, these subareas would have the greatest potential to degrade vegetation as a result in the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants.

Table IV.7-295
GCP Terrestrial Operational Impacts – Alternative 4

Ecoregion Subarea	Solar Impact[1] (acres)	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Cadiz Valley and Chocolate Mountains	11,000	1,000	-	7,000	19,000
Imperial Borrego Valley	28,000	300	11,000	5,000	44,300
Kingston and Funeral Mountains	600	-	-	-	600
Mojave and Silurian Valley	3,000	-	-	300	3,300
Owens River Valley	900	-	100	400	1,400
Panamint Death Valley	200	-	-	-	200
Pinto Lucerne Valley and Eastern Slopes	6,000	5,000	-	1,000	12,000
Piute Valley and Sacramento Mountains	-	-	-	-	-
Providence and Bullion Mountains	900	-	-	100	1,000
West Mojave and Eastern Slopes	38,000	13,000	-	1,000	52,000
Total	**89,000**	**19,000**	**11,000**	**14,000**	**133,000**

[1] Solar impacts include ground-mounted distributed generation.

Notes: Terrestrial operational impacts collectively refers to vegetation degradation impacts (BR-3) from dust, dust suppressants, fire, fire management, and invasive plants and wildlife impacts (BR-4) from creation of noise, predator avoidance behavior, lighting and glare. For the purposes of analysis, terrestrial operational impacts were quantified using the project area extent for solar and geothermal, using 25% of the project area for wind, and the right-of-way area for transmission.
Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation, short-term and long-term wind (excluding project area impacts), geothermal project area, and transmission impacts. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Dust and Dust Suppressants

Natural communities, and in particular natural communities that contain Mojave desert shrubs, are susceptible to vegetation degradation from dust. Impacts to these natural communities would mostly occur in the West Mojave and Eastern Slope subarea. Plant Covered Species, that could also experience vegetation degradation from dust, would mainly be impacted by Covered Activities within the GCP in the West Mojave and Eastern Slopes subarea. Considering the distribution of Covered Activities that would cause dust as well as the sensitive natural communities and plant Covered Species the West Mojave and Eastern Slopes subarea would experience the greatest magnitude of vegetation degradation resulting from dust.

The application of dust suppressants is a common management practice, a Covered Activity under the Plan, and has been shown to effectively reduce dust. Dust-related degradation of vegetation would be further minimized within the GCP through the incorporation of avoidance and minimization CMAs. The Plan-wide avoidance and minimization CMAs would generally identify vegetation in the project area (AM-PW-1), utilize standard practices to minimize the amount of exposed soils (AM-PW-14) and reduce dust caused by soil erosion (AM-PW-10). Additionally, Alternative 4 would implement CMAs that would identify and protect or salvage specific plant species, reducing their exposure to dust. Setbacks and suitable habitat impact caps would also be implemented for plant Covered Species in DFAs and in the reserve design envelope (AM-DFA-PLANT-1 through AM-DFA-PLANT-3).

Riparian and wetland natural communities would be susceptible to the adverse effects of dust suppressants including chemical and physical changes, altered hydrological function, and increased pollutant loads in surface water. The Imperial Borrego Valley subarea would experience most of the impacts to riparian and wetland natural communities in the GCP, which corresponds to the potential greatest magnitude of vegetation degradation from adverse dust suppressant effects. Plant Covered Species, which would also be affected by

the use of dust suppressants would mostly be impacted by Covered Activities in the West Mojave and Eastern Slopes subarea.

Avoidance and minimization CMAs implemented as part of Alternative 4, including AM-PW-9 and AM-PW-10, would utilize standard practices to reduce erosion and runoff of dust suppressant into sensitive vegetation. Setbacks and avoidance requirements for all riparian natural communities and some wetland natural communities that would be implemented as part of the CMAs would minimize potential adverse effects of dust suppressants on these communities (AM-DFA-RIPWET-1).

Fire and Fire Management

The increased presence of flammable invasive annual plants and anthropogenic ignitions of fires can cause the conversion of natural communities and degrade vegetation. Due to their slower speed of recovery, desert scrub natural communities are more susceptible to natural community conversion from fires. The impacts to desert scrub natural communities within the GCP would primarily occur within the West Mojave and Eastern Slopes subarea.

Under Alternative 4, construction and maintenance of fire breaks and other fire management techniques would impact California forest and woodlands, chaparral natural communities, and grassland natural communities within the GCP. In combination these impacts to woodlands, chaparral, and grasslands, which correspond to the amount of potential vegetation degradation resulting from vegetation removal during fire management, would predominantly occur in the West Mojave and Eastern Slopes subarea and to a lesser extent the Pinto Lucerne Valley and Eastern Slopes as well as the Cadiz Valley and Chocolate Mountains subareas.

Avoidance and minimization CMAs would be implemented to reduce the potential adverse effects of fire and fire management, including AM-PW-12 that would require projects to minimize the amount of vegetation clearing and fuel modification under Alternative 4.

Invasive Plants

Invasive plants can result in vegetation degradation by increasing the fuel load and the frequency of fires in plant communities as well hindering the growth or establishment of other plant species. Overall, the natural communities and plant Covered Species in the GCP are generally at risk of adverse effects from the introduction of invasive plants. The most vegetation degradation caused by the introduction of invasive plants would occur in the West Mojave and Eastern Slopes subarea. Plant Covered Species in the GCP would also experience potential vegetation degradation as a result of Covered Activities with most of the impacts occurring in the West Mojave and Eastern Slopes subarea.

Avoidance and minimization CMAs would be implemented to minimize vegetation degradation from invasive plants under Alternative 4, including AM-PW-7 that would ensure the timely restoration of temporarily disturbed areas that could otherwise promote invasive plants. Additional CMAs would use standard practices to control weeds and invasive plants (AM-PW-11) and require the responsible use of herbicides to reduce potential vegetation degradation (AM-PW-15) for all Covered Activities.

Impact BR-4: Siting, construction, decommissioning, and operational activities would result in loss of listed and sensitive plants; disturbance, injury, and mortality of listed and sensitive wildlife; and habitat for listed and sensitive plants and wildlife.

Impact BR-4 described at the Plan-wide level provides an impact analysis for Covered Species habitat by ecoregion subarea, specific Covered Species impact analyses, an indirect and terrestrial operational impact analysis for Covered Species, and a Non-Covered Species impact analysis. The following provides an impact analysis for Covered Species on nonfederal GCP lands. Most of the impacts to plant and wildlife species and their habitat under Alternative 4 would occur in the Imperial Borrego Valley and West Mojave and Eastern Slopes subareas.

Covered Species Habitat Impact Analysis by Ecoregion Subarea

West Mojave and Eastern Slopes Ecoregion Subarea

Renewable energy development in the West Mojave and Eastern Slopes subarea would mostly be from solar development, but would also include impacts from wind and transmission development. Typical impacts from these Covered Activities on plant and wildlife species and their habitat is described in Section IV.7.2. This subarea provides suitable habitat for amphibians and reptiles that would be impacted, including Agassiz's desert tortoise, Mojave fringe-toed lizard and Tehachapi slender salamander. The siting of the DFAs under the GCP largely avoid habitat for Mojave fringe-toed lizard and CMAs requiring avoidance of and setbacks from dune habitat (AM-DFA-DUNE-1 through AM-DFA-DUNE-3) would further avoid and minimize the impacts on these species to less than the acreage reported in Table IV.7-296. Compensation CMAs would offset habitat loss for these species.

There are impacts to suitable habitat for several bird Covered Species in the West Mojave and Eastern Slopes subarea, including Bendire's thrasher, burrowing owl, California condor, golden eagle, least Bell's vireo, mountain plover, southwestern willow flycatcher, Swainson's hawk, tricolored blackbird, and western yellow-billed cuckoo that would be impacted. CMAs require avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further avoid and minimize the impacts on least Bell's vireo, southwestern willow flycatcher, tricolored blackbird, and western yellow-billed cuckoo to less than the

acreage reported in Table IV.7-296. Additionally, the CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs (AM-DFA-AG-2). Compensation CMAs would offset habitat loss for these species.

Suitable habitat for bighorn sheep, desert kit fox, Mohave ground squirrel, pallid bat, and Townsend's big-eared bat would be impacted in this subarea. The siting of the DFAs under the GCP largely avoid habitat for bighorn sheep. The CMAs require avoidance of and setbacks from riparian and wetland habitat (AM-DFA-RIPWET-1) that would further reduce the impacts on these habitats used by Mohave ground squirrel, pallid bat, and Townsend's big-eared bat to less than the acreage reported in Table IV.7-296. Compensation CMAs would offset habitat loss for these species.

Suitable habitat for the following plant species would be impacted in the West Mojave and Eastern Slopes subarea: alkali mariposa-lily, Bakersfield cactus, Barstow woolly sunflower, desert cymopterus, Mojave monkeyflower, and Mojave tarplant. Although modeled suitable habitat for these species may be impacted by Covered Activities in this subarea, the CMAs require surveys for plant Covered Species for all Covered Activities, and the CMAs requiring avoidance of and setbacks from occupied habitat (AM-DFA-PLANT-1 through AM-DFA-PLANT-3) would further reduce the impacts on these species to less than the acreage reported in Table IV.7-296. Compensation CMAs would offset habitat loss for these species.

Imperial Borrego Valley Ecoregion Subarea

Renewable energy development within the Imperial Borrego Valley subarea would be primarily from solar energy development, but would also include impacts from geothermal, wind, and transmission development. The Imperial Borrego Valley subarea provides suitable habitat for flat-tailed horned lizard that would be impacted. The siting of the DFAs under the GCP largely avoid habitat for flat-tailed horned lizard, and CMAs requiring avoidance of and setbacks from dune habitat (AM-DFA-DUNE-1 through AM-DFA-DUNE-3) will further avoid and minimize the impacts on this species to less than the acreage reported in Table IV.7-296.

Impacts would occur to suitable habitat (nesting and non-nesting except for golden eagle which is foraging only) for the following covered bird species in this subarea: Bendire's thrasher, burrowing owl, California black rail, Gila woodpecker, golden eagle, greater sandhill crane, least Bell's vireo, mountain plover, southwestern willow flycatcher, Swainson's hawk, and Yuma clapper rail. CMAs require avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further avoid and minimize the impacts on southwestern willow flycatcher, least Bell's vireo, California black rail, and Yuma clapper rail to less than the acreage reported in Table IV.7-296. Additionally, the CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs (AM-DFA-AG-2).

Impacts to suitable habitat for desert pupfish, the only fish species with suitable habitat in this subarea, would be total approximately 200 acres. The avoidance and setback provisions for managed wetlands and agricultural drains (AM-DFA-RIPWET-1) would conserve wetland and riparian features within the agricultural matrix and provide conservation benefits to desert pupfish.

Only minimal impacts (approximately 10 acres) would occur to bighorn sheep mountain habitat in this subarea. Impacts to suitable habitat for other mammal Covered Species would occur for California leaf-nosed bat, pallid bat, and Townsend's big-eared bat, as well as for Planning Species desert kit fox. The siting of the DFAs under the GCP largely avoid habitat for bighorn sheep. The CMAs requiring avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further reduce the impacts on these habitats used by California leaf-nosed bat, pallid bat, and Townsend's big-eared bat to less than the acreage reported in Table IV.7-296.

Table IV.7-296
GCP Impact Analysis for Covered Species Habitat – Alternative 4

Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Amphibian/Reptile						
Agassiz's desert tortoise	2,248,000	27,000	3,000	30	2,000	32,000
Flat-tailed horned lizard	310,000	4,000	10	2,000	1,000	7,000
Mojave fringe-toed lizard	168,000	4,000	50	-	2,000	6,000
Tehachapi slender salamander	41,000	100	10	-	-	100
Bird						
Bendire's thrasher	405,000	4,000	400	600	700	5,000
Burrowing owl	3,244,000	75,000	4,000	10,000	9,000	98,000
California black rail	127,000	2,000	-	700	400	3,000
California condor	997,000	19,000	1,000	-	400	21,000
Gila woodpecker	56,000	300	-	100	100	600
Golden eagle–foraging	1,498,000	9,000	800	100	2,000	12,000
Golden eagle–nesting	676,000	1,000	100	-	200	1,000
Greater sandhill crane	601,000	29,000	300	8,000	5,000	43,000
Least Bell's vireo	104,000	200	10	10	40	200
Mountain plover	811,000	38,000	600	8,000	5,000	52,000

Table IV.7-296
GCP Impact Analysis for Covered Species Habitat – Alternative 4

Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Southwestern willow flycatcher	258,000	3,000	50	1,000	700	5,000
Swainson's hawk	1,339,000	34,000	1,000	5,000	3,000	43,000
Tricolored blackbird	257,000	9,000	300	30	100	10,000
Western yellow-billed cuckoo	111,000	300	10	-	50	300
Yuma clapper rail	31,000	30	-	10	-	50
Fish						
Desert pupfish	7,000	100	-	50	30	200
Mohave tui chub	100	-	-	-	-	-
Owens pupfish	13,000	40	-	-	10	50
Owens tui chub	13,000	40	-	-	10	50
Mammal						
Bighorn sheep – inter-mountain habitat	465,000	1,000	80	-	500	2,000
Bighorn sheep – mountain habitat	807,000	3,000	500	10	800	4,000
California leaf-nosed bat	979,000	6,000	70	600	4,000	11,000
Mohave ground squirrel	1,319,000	19,000	2,000	90	1,000	22,000
Pallid bat	3,775,000	44,000	3,000	2,000	7,000	56,000
Townsend's big-eared bat	3,510,000	40,000	3,000	2,000	7,000	52,000
Plant						
Alkali mariposa-lily	117,000	3,000	100	-	60	3,000
Bakersfield cactus	200,000	4,000	500	-	20	5,000
Barstow woolly sunflower	82,000	500	50	-	20	600
Desert cymopterus	137,000	800	10	-	20	800
Little San Bernardino Mountains linanthus	130,000	400	70	-	70	500
Mojave monkeyflower	41,000	700	50	-	20	700
Mojave tarplant	129,000	200	30	-	30	300
Owens Valley checkerbloom	92,000	300	-	40	100	500

Table IV.7-296
GCP Impact Analysis for Covered Species Habitat – Alternative 4

Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Parish's daisy	72,000	600	100	-	100	800
Triple-ribbed milk-vetch	3,000	-	-	-	-	-

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

[2] Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Specific Covered Species Impact Analyses

For Agassiz's desert tortoise, desert tortoise important areas were identified that include tortoise conservation areas (TCAs), desert tortoise linkages, and desert tortoise high priority habitat (see desert tortoise BGOs in Appendix C). Table IV.7-297 provides an impact analysis for these desert tortoise important areas in the GCP area, organized by desert tortoise Recovery Units: Colorado Desert, Eastern Mojave, and Western Mojave. Within the Colorado Desert Recovery Unit, approximately 2,000 acres of TCAs, linkage habitat, and high priority habitat would be impacted under Alternative 4. Within the Eastern Mojave Recovery Unit, about 300 acres of linkage habitat would be impacted under Alternative 4. Within the Western Mojave Recovery Unit, about 10,000 acres of TCAs and linkage habitat would be impacted under Alternative 4. CMAs would require avoidance of TCAs, except for impacts associated with transmission or impacts in disturbed portions of TCAs. Additionally, the CMAs would prohibit impacts that affect the viability of desert tortoise linkages (AM-DFA-ICS-1 and AM-DFA-ICS-3 through 15). Compensation CMAs would be required for impacts to desert tortoise, including desert tortoise important areas. Under Alternative 4, the designated DRECP Variance Lands have the potential to undermine the integrity and long-term conservation value of the conservation strategy for desert tortoise.

Table IV.7-297
GCP Impact Analysis for Desert Tortoise Important Areas – Alternative 4

Recovery Unit	Desert Tortoise Important Areas	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Colorado Desert	High Priority Habitat	31,000	-	-	-	10	10
	Linkage	63,000	10	-	-	-	10
	TCA	269,000	80	-	-	2,000	2,000
Colorado Desert Total		*363,000*	*90*	-	-	*2,000*	*2,000*
Eastern Mojave	Linkage	56,000	300	-	-	-	300
	TCA	66,000	-	-	-	-	-
Eastern Mojave Total		*122,000*	*300*	-	-	-	*300*
Western Mojave	Linkage	407,000	8,000	**900**	-	600	9,000
	TCA	392,000	300	**30**	-	200	500
Western Mojave Total		*798,000*	*8,000*	**900**	-	***700***	*10,000*
Total		**1,283,000**	**8,000**	**900**	-	**2,000**	**12,000**

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
[2] Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For golden eagle, a territory-based analysis was conducted (see methods and results in the Chapter IV.7 portion of Appendix R2). Using the golden eagle nest database, golden eagle territories were identified and individually buffered by 1 mile (representing breeding areas around known nests) and 4 miles (representing use areas around known nests). A total of 157 territories occur wholly or partially within the GCP area. Under Alternative 4, 23 territories have DFAs or transmission corridors within 1 mile of a nest. Implementation of the CMAs for golden eagles (AM-DFA-ICS-2) would prohibit siting or construction of Covered Activities within 1 mile of an active golden eagle nest; therefore, impacts within 1 mile of these golden eagle territories would be avoided. Under Alternative 4, 61 territories have DFAs or transmission corridors within 4 miles of nest, and the use area of these territories could be impacted through harassment and reduced foraging opportunities by Covered Activities depending of the siting of specific projects. The CMAs for golden eagles (Section II.3.1.2.5) and the approach to golden eagles (see Appendix H) describes how the impact to golden eagles would be avoided, minimized, and compensated. Based on the

2013 analysis, no more than 15 golden eagles per year in 2014 would be allowed to be taken within the Plan Area, which would be reassessed annually.

For bighorn sheep, bighorn sheep mountain habitat and intermountain (linkage) habitat have been identified in the Plan Area. Under Alternative 4 on nonfederal land, approximately 4,000 acres of mountain habitat and 2,000 acres of intermountain habitat would be impacted. Alternative 4 identified DFAs that largely avoid impacts to bighorn sheep mountain and intermountain habitat, and avoidance, minimization, and compensation CMAs have been developed to offset the loss of habitat for bighorn sheep.

For Mohave ground squirrel, Mohave ground squirrel important areas were identified that include key population centers, linkages, expansion areas, and climate change extension areas (see Mohave ground squirrel BGOs in Appendix C). Table IV.7-298 provides an impact analysis for these Mohave ground squirrel important areas in the GCP area. Approximately 500 acres of impact within key population centers would occur in Alternative 4 and approximately 4,000 acres of impact would occur in climate change extension areas. A total of approximately 200 acres of impact to linkage and approximately 2,000 acres of impact to expansion areas would occur under Alternative 4. The CMAs would prohibit impacts that affect the viability of linkages (AM-DFA-ICS-36 through AM-DFA-ICS-43). Compensation CMAs would be required for impacts to Mohave ground squirrel, including Mohave ground squirrel important areas.

Table IV.7-298
GCP Impact Analysis for Mohave Ground Squirrel Important Areas – Alternative 4

Mohave Ground Squirrel Important Area Type	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Key Population Center	193,000	300	10	-	200	500
Linkage	103,000	100	-	10	50	200
Expansion Area	258,000	2,000	80	-	100	2,000
Climate Change Extension	131,000	800	-	80	200	1,000
Total	**684,000**	**3,000**	**90**	**100**	**500**	**4,000**

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
[2] Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Within the Plan Area, critical habitat has been designated by the USFWS for the following Covered Species: desert tortoise, southwestern willow flycatcher, desert pupfish, and Parish's daisy. For desert tortoise, approximately 2,000 acres of impact designated critical habitat would result from the development of Covered Activities on nonfederal lands under Alternative 4 located in the Chuckwalla, Fremont-Kramer, Ord-Rodman, and Superior-Cronese critical habitat units. Under Alternative 4, no impacts to critical habitat designated for southwestern willow flycatcher, desert pupfish, or Parish's daisy would occur from the development of Covered Activities on nonfederal lands.

Indirect and Terrestrial Operational Impact Analysis

Siting, construction, and operational Covered Activities could result in the potential disturbance, injury, and mortality of listed and sensitive wildlife from noise, predator avoidance behavior, as well as light and glare. The degree to which these factors contribute to the disturbance of sensitive wildlife corresponds to the distribution of Covered Activities within the GCP that would result in noise, predator avoidance behavior, or light and glare. Based on the planned renewable energy capacity in the GCP, most of terrestrial operational impacts would occur in the West Mojave and Eastern Slopes and the Imperial Borrego Valley subareas respectively, as shown in Table IV.7-295. As a result, these subareas would have the greatest potential to disturbance of sensitive wildlife from noise, predator avoidance behavior, as well as light and glare.

Noise

Noise can cause physical damage to wildlife as well as behavioral changes in habitat use, activity patterns, reproduction, and foraging. Nesting birds are expected to be particularly sensitive to noise effects. The largest amount of impacts to bird Covered Species habitat in the GCP would be located in the West Mojave and Eastern Slopes and Imperial Borrego Valley subareas. Smaller mammals, such as the Mohave ground squirrel, and reptiles, such the Mojave fringe-toed lizard and flat-tailed horned lizard, could experience increased predation from noise hindering their ability to detect predators. The combined impacts in the GCP to the habitat for these Covered Species would mostly occur in the West Mojave and Eastern Slopes subarea, and to a lesser extent in the Imperial Borrego Valley and Pinto Lucerne and Eastern Slopes subareas. As such, the disturbance of wildlife from noise would predominantly occur in the West Mojave and Eastern Slopes and Imperial Borrego Valley subareas.

Implementation of avoidance and minimization CMAs under Alternative 4 would minimize the disturbance and injury of wildlife from noise-related effects. The CMA AM-PW-13 would reduce noise generated from Covered Activities using standard practices while other CMAs that would avoid and setback Covered Activities from noise-sensitive wildlife including seasonal setbacks for nesting birds; setbacks from riparian and wetland habitat benefitting bids, amphibians, and small mammals; and avoidance of

Mohave ground squirrel's during operations (AM-DFA-RIPWET-1, AM-DFA-RIPWET-5, and AM-DFA-ICS-36).

Predator Avoidance Behavior

The effects of predator avoidance behavior including wildlife experiencing behavioral changes due to human activities during siting, construction, and operations. Although different wildlife species may have varying sensitivities to predator avoidance behavior and may experiences different magnitudes of responses to Covered Activities, these Covered Activities are expected to generally result in predator avoidance and other behavioral changes in most wildlife species that are spread throughout the GCP. Therefore, the most disturbance of wildlife from predator avoidance behavior would occur in the West Mojave and Eastern Slopes and Imperial Borrego Valley subareas, where most of the terrestrial operational impacts within the GCP are anticipated.

Avoidance and minimization CMAs for siting Covered Activities away from sensitive wildlife habitat would be implemented for riparian and wetland habitat, wildlife species that inhabit agricultural lands, and for particular species such as the Mohave ground squirrel (AM-DFA-RIPWET-1, AM-DFA-RIPWET-5, AM-DFA-AG-2, and AM-DFA-ICS-36). Under Alternative 4, additional CMAs would inform workers of actions that could potentially affect wildlife behavior and restrict activities that could disturb wildlife and their access to water and foraging habitat (AM-PW-5, AM-PW-13, and AM-RES-RL-DUNE-2). Seasonal restrictions would also be implemented for recreational activities that might affect Bighorn sheep in the reserve design envelope (AM-RES-BLM-ICS-11). The potential disturbance of wildlife from predator avoidance behavior caused by siting, construction, and operational Covered Activities in the GCP would be minimized by these measures.

Light and Glare

Exposure of wildlife to light and glare can alter wildlife behavior including foraging, migration, and breeding. Solar projects are expected to have greater effects on wildlife compared to other renewable energy technologies because they would produce increased levels of glare due to the large amount of reflective panel or heliostat surfaces. Potential adverse effects associated with light and glare from solar projects, including solar flux and bird collisions from the lake effect are analyzed in BR-9. Most of the terrestrial operational impacts in the GCP resulting from development of all technology types of renewable energy would occur in the West Mojave and Eastern Slopes and Imperial Borrego Valley subareas. Similarly, the Imperial Borrego Valley and West Mojave and Eastern Slopes subareas would experience most of the terrestrial operational impacts from solar projects in the GCP. Therefore, these subareas would have the greatest potential to disturbance of sensitive wildlife from noise, predator avoidance behavior, as well as light and glare.

Bats and other diurnal predators may exploit night lighting that increases prey detectability, but would also be attracted to areas of greater development that increase

potential hazards such as collision. Impacts to habitat for bats would as a result of Covered Activities in the GCP would mainly be located in the West Mojave and Eastern Slopes subarea and to a lesser extent in the Pinto Lucerne Valley and Eastern Slopes subarea. Migratory birds that fly during the night may be affected by aviation safety lighting. For bird Covered Species the West Mojave and Eastern Slopes and Imperial Borrego Valley are the subareas primarily affected, containing most of the impacts to bird Covered Species habitat in the GCP. As such, wildlife disturbance is anticipated to occur primarily in the West Mojave and Eastern Slopes subarea and to a lesser extent in the Pinto Lucerne Valley and Eastern Slopes as well as the Imperial Borrego Valley subareas.

Alternative 4 would implement avoidance and minimization CMAs within the GCP specifically intended to minimize effects of lighting and glare including AM-PW-14, which would implement standard practices for shielding and reducing the use of lights, as well as AM-DFA-RIPWET-4, which specifically restricts lighting within one mile of riparian or wetland vegetation. Other CMAs applicable in the GCP would implement setbacks for riparian and wetland habitat, wildlife species that inhabit agricultural lands, and for smaller mammals, which would minimize their exposure to light and glare from Covered Activities (AM-DFA-RIPWET-1, AM-DFA-RIPWET-5, and AM-DFA-AG-2).

Non-Covered Species

Potential impacts to Non-Covered Species on GCP Land were analyzed as described in Section IV.7.3.2.1. Table IV.7-299 provides an estimation of the impacts to natural communities associated with Non-Covered Species. While estimation of impacts to natural communities likely overestimates the potential impacts to Non-Covered Species habitats, it provides a general range of level of impact.

Impacts to the dune community, riparian communities, arid west freshwater emergent marsh, and Californian warm temperate marsh/seep would be avoided through implementation of CMAs, so impacts to potential habitat for each of these species is likely greater than would actually occur. For some species, impacts would be minimized through avoidance of the specific natural communities required for those species, e.g. dune-, spring-, or cave-restricted invertebrates, or riparian-obligate bird species. The total impact to potential habitat across all technology types is less than 1%, with the exception the desert scrub/chaparral communities at approximately 1.7%, grassland communities at approximately 3.2%, and within the agriculture/rural land cover areas at approximately 6.1%.

Critical habitat for the federally-listed Non-Covered Species would essentially be avoided across all renewable energy types.

The results of impacts on Non-Covered Species from the creation of noise, predator avoidance behavior, and light and glare would be similar to those described for the Covered Species.

Table IV.7-299
GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 4

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
California forest and woodland/ Desert conifer woodlands	Coast horned lizard, grey vireo, loggerhead shrike, yellow warbler, American badger, bighorn sheep, fringed myotis, hoary bat, long-eared myotis, pocketed free-tailed bat, spotted bat, Tehachapi pocket mouse, western mastiff bat, western small-footed myotis, Amargosa beardtongue, Charlotte's phacelia, creamy blazing star, Cushenbury buckwheat, Cushenbury milk-vetch, Cushenbury oxytheca, Kern buckwheat, Piute Mountains jewel-flower, purple-nerve cymopterus, San Bernardino Mountains dudleya, short-joint beavertail cactus, Spanish needle onion, Tracy's eriastrum, Cushenbury buckwheat	209,000	1,000	100	0	100	1,200	0.6%
Desert Scrub/ Chaparral Communities	Arroyo toad, banded gila monster, Coast horned lizard, Colorado Desert fringe-toed lizard, Couch's spadefoot, rosy boa, bald eagle, bank swallow, Crissal thrasher, Ferruginous hawk, gilded flicker, grey vireo, Le Conte's thrasher, loggerhead shrike, long-eared owl,	3,020,000	41,000	4,000	1,000	6,000	52,000	1.7%

Table IV.7-299
GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 4

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	Lucy's warbler, northern harrier, yellow warbler, American badger, Arizona myotis, big free-tailed bat, bighorn sheep, cave myotis, fringed myotis, hoary bat, long-eared myotis, Palm Springs pocket mouse, pocketed free-tailed bat, spotted bat, Tehachapi pocket mouse, western mastiff bat, western small-footed myotis, western yellow bat, yellow-eared pocket mouse, Yuma myotis, Algodones Dunes sunflower, Ash Meadows gum plant, Amargosa beardtongue, bare- stem larkspur, Charlotte's phacelia, Cima milk-vetch, Coachella Valley milk-vetch, creamy blazing star, Cushenbury buckwheat, Cushenbury milk-vetch, Cushenbury oxytheca, desert pincushion, Emory's crucifixion-thorn, flat-seeded spurge, forked buckwheat, Harwood's eriastrum, Harwood's milkvetch, Inyo County star-tulip, Kelso Creek monkeyflower, Kern buckwheat, Las Animas colubrina, Lane Mountain Milk-Vetch, Mojave							

Table IV.7-299
GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 4

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	Desert plum, Mojave milkweed, Munz's Cholla, nine-awned pappus grass, Orcutt's woody aster, Orocopia sage, Parish's club cholla, Pierson's milk-vetch, pink fairy-duster, Piute Mountains jewel-flower, purple-nerve cymopterus, Red Rock poppy, Red Rock tarplant, Robinson's monardella, Rusby's desert-mallow, sand food, Sodaville milk-vetch, short-joint beavertail cactus, Spanish needle onion, Thorne's buckwheat, Tracy's eriastrum, Utah beardtongue, white bear poppy, White-margined beardstongue, Wiggin's croton, Flat-seeded spurge, Parish's phacelia, Parish's alkali grass							
Dunes[3]/ Desert Outcrop and Badlands	Banded gila monster, barefoot gecko, Coast horned lizard, Colorado Desert fringe-toed lizard, Couch's spadefoot, rosy boa, bald eagle, bank swallow, Le Conte's thrasher, loggerhead shrike, long-eared owl, northern harrier, Amargosa vole, big free-tailed bat, bighorn sheep, cave myotis, bat, spotted bat, western mastiff bat,	254,000	800	10	200	500	1,500	0.6%

Table IV.7-299
GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 4

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	Yuma myotis, Algodones Dunes sunflower, Ash Meadows gum plant, Amargosa beardtongue, Amargosa niterwort, Charlotte's phacelia, Cima milk-vetch, Coachella Valley milk-vetch, creamy blazing star, desert pincushion, Emory's crucifixion-thorn, flat-seeded spurge, forked buckwheat, Harwood's eriastrum, Harwood's milkvetch, Inyo County star-tulip, Las Animas colubrina, Mojave Desert plum, Mojave milkweed, nine-awned pappus grass, Orcutt's woody aster, Orocopia sage, Palmer's jackass clover, Parish's club cholla, Pierson's milk-vetch, pink fairy-duster, purple-nerve cymopterus, Red Rock poppy, Red Rock tarplant, Robinson's monardella, Rusby's desert-mallow, sand food, Spanish needle onion, Thorne's buckwheat, Utah beardtongue, white bear poppy, Wiggin's croton, Palmer's jackass clover, white-margined beardtongue, flat-seeded spurge							

Table IV.7-299
GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 4

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
Grassland	Coast horned lizard, American peregrine falcon, bank swallow, Ferruginous hawk, long-eared owl, northern harrier, white-tailed kite, Amargosa vole, American badger, spotted bat, Cushenbury milk-vetch, Cushenbury oxytheca, short-joint beavertail cactus	203,000	6,300	300	0	300	6,600	3.2%
Riparian/ Wetlands	Arroyo toad, California red-legged frog, Coast horned lizard, Couch's spadefoot, Western pond turtle, American peregrine falcon, Arizona Bell's vireo, bald eagle, bank swallow, Crissal thrasher, gilded flicker, elf owl, Inyo California towhee, loggerhead shrike, long-eared owl, Lucy's warbler, northern harrier, redhead, vermillion flycatcher, white-tailed kite, yellow-breasted chat, yellow-headed blackbird, yellow warbler, Amargosa vole, Mojave River vole, Arizona myotis, cave myotis, fringed myotis, hoary bat, long-eared myotispocketed free-tailed bat, spotted bat, western mastiff bat, western yellow bat, Yuma myotis, Ash Meadows gum plant,	413,000	2,000	100	0	200	2,300	0.6%

Table IV.7-299
GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 4

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[4]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	Inyo County star-tulip, Parish's alkali grass, Parish's phacelia, Amargosa pupfish, Amargosa speckled dace, Amargosa spring snails							
Agriculture/ Rural Land Cover	American peregrine falcon, Bank swallow, loggerhead shrike, long-eared owl, northern harrier, redhead, yellow-headed blackbird, yellow warbler, Arizona myotis, hoary bat, Tehachapi pocket mouse, western mastiff bat, western yellow bat	803,000	34,000	400	8,500	6,400	49,300	6.1%

[1]Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
[2]Solar impacts include ground-mounted distributed generation.
[3]Impacts to the dune community, riparian communities, arid west freshwater emergent marsh, and Californian warm temperate marsh/seep would be avoided through implementation of CMAs. Only impacts determined to be unavoidable would occur in these natural communities.
[4]This amount assumes the loss of conservation value for all land fragmented by the well fields.
Notes: The natural community classification system is described in Chapter III.7 and follows CDFG 2012. Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Impact BR-5: Siting, construction, decommissioning, and operational activities could result in loss of nesting birds (violation of the federal Migratory Bird Treaty Act and California Fish and Game Code Sections 3503, 3503.5, 3511, and 3513).

Siting, construction, decommissioning, and operations of renewable energy and transmission projects would result in the removal of vegetation and other nesting habitat and cause increased human presence and noise that has the potential to cause the loss of nesting birds, which would be a violation of the federal Migratory Bird Treaty Act. The potential loss of nesting birds resulting from these activities would be adverse without application of CMAs. Avoidance and minimization CMAs (AM-PW-4, 13, 14; AM-DFA-RIPWET-1, 3, 5; AM-DFA-AG-1 through 6; AM-DFA-ICS CMAs for bird species) include the season restrictions, survey requirements, and setbacks necessary to avoid and minimize the loss of nesting birds.

Impact BR-6: Siting, construction, decommissioning, and operational activities would adversely affect habitat linkages and wildlife movement corridors, the movement of fish, and native wildlife nursery sites.

Species-specific habitat linkages and wildlife movement areas are a component of analysis conducted under Impact BR-4 above. Suitable habitat for each species includes areas of habitat linkages and wildlife movement. Analysis under BR-4 specifically incorporates habitat linkage information for desert tortoise, Mohave ground squirrel, and desert bighorn sheep. In addition to the species-specific analysis of impacts to suitable habitat supporting habitat linkages and wildlife movement for species, landscape level information on habitat linkages (i.e., Desert Linkage Network) and migratory bird movement are analyzed below.

Desert Linkage Network

Table IV.7-300 shows the impact analysis for the desert linkage network for Alternative 4 for the GCP. Overall, over 11,000 acres of desert linkage network could be adversely impacted in DFAs and transmission corridors in mainly six different subareas. In the Cadiz Valley and Chocolate Mountains subarea, DFAs are located in the portion of the desert linkage network that connects the Colorado River to the northern part of the McCoy Mountains. There are also DFAs in the linkage network that extends along the McCoy Mountains and connects south to the Palo Verde Mesa. There are also DFAs in the Chuckwalla Valley portion of a linkage network that extends west and south. In the Mojave and Silurian Valley, there are DFAs in the Mojave Valley in a linkage that connects the area east of Barstow north to the Superior Valley and in the linkage that connects Barstow to the Calico Mountains. In the Owens River Valley, there are DFAs in the desert linkage network that connects the Haiwee Reservoir to Indian Wells. In the Panamint Death Valley subarea, there is a DFA in the Searles Valley in a linkage that connects the Searles and Argus Ranges. In the Pinto Lucerne Valley and Eastern Slopes subarea, there are DFAs in the desert

linkage network that connects the Grapevine Canyon Recreation Lands to the Granite Mountains and the Ord Mountains. There are also DFAs in the linkage that connects Turtle Mountain to the Mojave River. In the West Mojave and Eastern Slopes subarea, there are DFAs in the linkage that connects the area around Baldy Mesa along the southern edge of the Plan Area to Helendale. DFAs also occur in the linkages around Barstow. Farther west in the Plan Area, there are DFAs in the linkages that connect Fremont Valley and Soledad Mountain to the Tehachapi Mountains.

To avoid and minimize impacts to the desert linkage network beyond what is presented in Table IV.7-300, Covered Activities will be sited and designed to maintain the function of wildlife connectivity in the following linkage and connectivity areas: (1) across Interstate 10 centered on Wiley's Well Road to connect the Mule and McCoy mountains, (2) across Interstate 10 to connect the Chuckwalla and Palen mountains, (3) across Interstate 10 to connect the Chuckwalla Mountains to the Chuckwalla Valley east of Desert Center, and (4) the confluence of Milpitas Wash and Colorado River floodplain. In addition, the Riparian and Wetland Natural Communities and Covered Species CMAs will contribute to maintaining and promoting habitat connectivity and wildlife movement. The inclusion of DRECP Variance Lands in this alternative and the uncertainty of future management of these lands undermines the strength of the DRECP Plan-Wide Reserve Design Envelope for Alternative 4.

Table IV.7-300
GCP Impact Analysis for the Desert Linkage Network – Alternative 4

Desert Linkage Network by Ecoregion Subarea	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Cadiz Valley and Chocolate Mountains	148,000	1,000	30	-	3,000	4,000
Imperial Borrego Valley	10,000	90	-	30	10	100
Kingston and Funeral Mountains	12,000	-	-	-	-	-
Mojave and Silurian Valley	101,000	900	-	-	90	1,000
Owens River Valley	4,000	50	-	10	30	90
Panamint Death Valley	15,000	70	-	-	-	70
Pinto Lucerne Valley and Eastern Slopes	122,000	2,000	300	-	500	3,000
Piute Valley and Sacramento Mountains	24,000	-	-	-	-	-

Table IV.7-300
GCP Impact Analysis for the Desert Linkage Network – Alternative 4

Desert Linkage Network by Ecoregion Subarea	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Providence and Bullion Mountains	49,000	-	-	-	-	-
West Mojave and Eastern Slopes	468,000	4,000	400	-	200	4,000
Total	**952,000**	**7,000**	**800**	**30**	**3,000**	**12,000**

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
[2] Solar impacts include ground-mounted distributed generation.

Notes: Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Migratory Bird

Migration patterns and the potential impacts of different technologies are discussed, in the typical impacts section (Section IV.7.2.1.3), with direct habitat loss quantified in BR-4, and operational impacts quantified in BR- 9. The following analysis focuses on the anticipated distribution of different technology types in relation to known migratory corridors, and migratory resources in each subarea.

In Alternative 4 wind generation is a moderate proportion of the overall generation mix nonfederal DFAs. Impacts are mainly focused in the West Mojave and Eastern Slopes, Pinto Lucerne Valley, with fewer impacts in the Cadiz and Chocolate Mountain, and Imperial Borrego Valley subareas. Wind development would mostly occur on the eastern slopes of the Tehachapi Mountains and in the mountainous areas around Lucerne Valley. Key bird migration areas affected would include routes between the Tehachapi and San Bernardino passes, and the dry lakes and wetland refuges on and to the north of Edwards AFB, including the North Mojave dry lakes of China Lake, Koehn Lake, Harper Lake and Searles Lake. Further, direct loss of habitat in Antelope Valley would lead to loss of habitat for wintering birds. Small amounts of wind development would occur in the Cadiz and Chocolate Mountains subarea. These areas are near to the Colorado River migratory corridor, and may affect migratory bird movement to and from the Coachella Valley. Similarly, small amounts of wind development would be expected in Imperial Borrego

Valley is anticipated in Alternative 4 which would affect migratory and overwintering birds associated with the Salton Sea.

Solar development on nonfederal DFAs would be constructed throughout the West Mojave and Eastern Slopes, Pinto Lucerne Valley, Cadiz and Chocolate Mountain and Imperial Borrego Valley subareas. Alternative 4 would result in new PV and solar thermal generation facilities along the I-10 corridor, and to the west side of the Colorado River, in disturbed lands west of Blythe. This may give the appearance of a string of lakes on known migratory linkages for birds between the Colorado River corridor, and the Coachella Valley. Similarly, development in the West Mojave and Eastern slopes, and Pinto Lucerne Valley subareas would occur in DFAs between the passes of the Tehachapi Mountains, the passes of the San Bernardino Mountains, and dry lakes on Edwards AFB, and in the North Mojave. Private lands DFAs, in the Imperial Borrego Valley subarea would primarily be in agricultural lands bordering and to the south of the Salton Sea.

Application of CMAs would require projects to be sited and designed to avoid impacts to occupied habitat and suitable habitat for Covered Species to the maximum extent feasible. Further, siting and construction CMAs would minimize direct loss of riparian and wetland habitats. Compensation CMAs would offset habitat loss for Covered Species. A bird and bat use and mortality monitoring program would be implemented during operations. Further, proposed projects that are likely to impact bird and bat Covered Species during operation would develop and implement a project-specific Bird and Bat Covered Species Operational Actions that meets the approval of the appropriate DRECP Coordination Group. The goal of the project-specific Actions would be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar and geothermal projects. Siting and construction CMAs would minimize direct loss of riparian and wetlands habitats. Compensation CMAs would offset habitat loss for Covered Species. The compensation requirements in the Bird and Bat Covered Species Operational Actions would be based on ongoing/annual fees and the biological basis for the fee would be determined by the mortality effects as annually measured and monitored according to the AM-LL-4. In combination, the application of siting, monitoring, operational and compensation CMAs would minimized impacts to migratory birds. Application of CMAs would reduce the overall impacts to migratory bird populations.

Impact BR-7: Siting, construction, decommissioning, and operational activities would result in habitat fragmentation and isolation of populations of listed and sensitive plants and wildlife.

As discussed in the Plan-wide analysis, the construction and operation of renewable energy and transmission projects can have the potential to fragment intact and interconnected landscapes resulting in isolated patches of habitat, isolated species populations, reduced

gene flow, and remaining habitat that is more exposed to the edge effects of adjacent developments. The DRECP integrated planning process, as described in Volume II, avoids and minimizes this impact through the siting of DFAs and through the reserve design. In order to minimize habitat fragmentation and population isolation, DFAs were sited in less intact and more degraded areas. However, under Alternative 4, DRECP Variance Lands are included that were not sited to avoid intact landscapes and were not sited to ensure development is constrained to more degraded lands. The inclusion of the DRECP Variance Lands scattered across the landscape under Alternative 4 undermines the intactness and puts larger intact landscapes at risk of dispersed future development. Other measures of fragmentation and population isolation effects include the amount of impacts on environmental gradients such as elevation, landforms, slope, and aspect. The impacts to these four environmental gradients under Alternative 4 within DFAs under the GCP would follow the same overall pattern as Plan-wide impacts (AM-LL-1 through AM-LL-4).

Impact BR-8: Construction of generation facilities or transmission lines would result in increased predation of listed and sensitive wildlife species.

As discussed in the Plan-wide analysis, Covered Activities in undisturbed desert habitat are likely to supplement predators, and increase predation rates on Covered Species. The GCP Alternative 4 would result 71,000 acres of permanent conversion of natural desert communities and with 51,000 acres of impacts (42% of the total ground disturbance) within areas characterized by disturbed land cover types.

Development in the West Mojave and Eastern Slopes subareas may supplement predators in undisturbed habitats including parts of the Tehachapi Mountains and DFAs to the north of Edwards AFB. However, much of the development would be expected in disturbed and agricultural land around Lancaster and in the Antelope Valley. In these areas, susceptible species would include nestlings and eggs of Covered Species like tricolored blackbird and golden eagle, Bendire's thrasher, Swainson's hawk, as well as small reptiles like the Tehachapi slender salamander, and mammals like the Mohave ground squirrel. Covered Activities associated with solar and wind generation in the Pinto and Lucerne Valley subarea would affect areas in Lucerne Valley to the East of Victorville. Species impacted would include golden eagle, and other nesting birds as well as small mammals and reptiles like desert tortoise. The development in the Cadiz and Chocolate Mountains subarea would be expected in the agricultural and disturbed lands around Blythe. Impacts are likely to increase predation on susceptible species including desert tortoise, Mojave fringe-toed lizard, and nesting bird species. Impacts from solar and geothermal development area anticipated in Imperial Borrego Valley. Impacts would occur in agricultural habitats south and west of the Salton Sea. Increased predation would affect nesting birds, flat-tailed horned lizard, desert tortoise, and nesting birds.

The inclusion of DRECP Variance Lands under Alternative 4 has the potential for increased risk of scattered transmission lines and scattered development activities in remote and intact landscapes, which could lead to future increased levels of predation.

Application of a Common Raven management plan (AM-PW-6), approved by the appropriate DRECP Coordination Group would reduce project activities that increase predator subsidization. Activities include: removal of trash and organic waste; minimize introduction of new water sources including pooling of water from dust control; removal of carcasses from bird and bat collisions; and reduction in new nesting and perching sites where feasible.

The level of impact on Non-Covered Species would be similar to that discussed for the Covered Species.

Impact BR-9: Operational activities would result in avian and bat injury and mortality from collisions, thermal flux or electrocution at generation and transmission facilities.

The impacts of operation activities on avian and bat injury and mortality are analyzed below for wind turbines, solar, and transmission.

Wind Turbine

This section summarizes wind turbine operational impacts to bird and bat species within the private lands DFAs. The range of collision rates calculated in Table IV.7-301 is indicative of the overall annual collision rates for all bird and bat species, not just Covered Species. The range of collision rates is estimated for the final full build-out of wind over the life of the Plan, and is based on the range of collision rates in existing published and gray literature. While it is possible to provide a range of possible collision rates, it is not feasible to estimate the collision rate for each Covered Species, but only infer the propensity for a species to be at risk of collision from its expected distribution and life history of the birds in the Plan Area.

Overall, Alternative 4 would result in a median of 5,000 collisions per year for birds and 23,000 collisions for bats in DFAs on nonfederal lands. The expected distribution of wind generation indicates that 65% of all collisions would occur in the West Mojave and Eastern Slopes subarea, 26% in the Pinto Lucerne Valley and Eastern Slopes subarea, 9% in the Cadiz Valley and Chocolate Mountains subarea, and 1% in the Imperial Borrego Valley subarea.

Development in the West Mojave and Eastern Slopes would impact Bendire's thrasher, burrowing owl, California condor, golden eagle, mountain plover, southwestern willow flycatcher, Swainson's hawk, and tricolored blackbird. Whereas, development in the Pinto and Lucerne Valley subarea would affect golden eagle territories and important Bendire's

thrasher habitat. The remaining wind operations in the Cadiz Valley and Chocolate Mountains region would result in a higher risk of collisions for Bendire's thrasher, burrowing owl, California black rail, Gila woodpecker, golden eagle, greater sandhill crane, mountain plover, western yellow-billed cuckoo, and Yuma clapper rail.

Pre-construction CMAs require habitat assessments and pre-construction surveys for covered riparian and wetland bird, burrowing owl, greater sandhill crane, Swainson's hawk, Bendire's thrasher, golden eagle species.

Application of siting CMAs would avoid or minimize the risk to species localities. Setbacks from active nests would be required for Bendire's thrasher, California condor, Gila woodpecker, and golden eagle. In addition, projects would be sited and designed to avoid impacts to occupied habitat, and suitable habitat for Covered Species to the maximum extent feasible. Implementation of bat specific CMAs include 0.5 mile setbacks from all bat maternity roosts and 5% disturbance caps on desert scrub and woodland habitats in the vicinity of occupied Pallid bat and Townsend's Big eared Bats roosts would reduce impacts to covered bat species.

Applicants would develop and implement a project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meets the approval of the appropriate DRECP Coordination Group. The goal of the project-specific Bird and Bat Covered Species Operational Actions will be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar, geothermal, or transmission project. A bird and bat use and mortality monitoring program will be implemented during operations using current protocols and best procedures available at time of monitoring. Further, the compensation requirements in the Bird and Bat Covered Species Operational Actions would be based on ongoing/annual fees and the biological basis for the fee will be determined by the mortality effects as annually measured and monitored according to the Bird and Bat Covered Species Operational Actions.

Similarly, a Condor Operations Strategy (COS) would be developed on a project-specific basis with the goal of avoiding mortality from operations of wind, solar and geothermal projects. No take for condors will be will be permitted in the form of kill from project operations. Any actions taken to encourage condors to leave an area that might result in harassment, injury, or mortality to the bird will be conducted by a Designated Biologist.

Table IV.7-301
GCP Estimated Range of Bird and Bat Collisions per Year by Subarea – Alternative 4

Ecoregion Subarea	# Turbines	Birds (Collisions/Yr)[1]			Bats (Collisions/Yr)[1]		
		Low	*Median*	*High*	*Low*	*Median*	*High*
Cadiz Valley and Chocolate Mountains	74	100	400	1,000	100	2,000	10,000
Imperial Borrego Valley	13	-	100	200	-	300	2,000
Kingston and Funeral Mountains	0	-	-	-	-	-	-
Mojave and Silurian Valley	0	-	-	-	-	-	-
Owens River Valley	0	-	-	-	-	-	-
Panamint Death Valley	0	-	-	-	-	-	-
Pinto Lucerne Valley and Eastern Slopes	252	400	1,000	5,000	500	6,000	35,000
Piute Valley and Sacramento Mountains	0	-	-	-	-	-	-
Providence and Bullion Mountains	0	-	-	-	-	-	-
West Mojave and Eastern Slopes	634	1,000	3,000	12,000	1,000	15,000	89,000
Grand Total	**973**	**2,000**	**5,000**	**19,000**	**2,000**	**23,000**	**136,000**

[1] Method for estimation of annual bird and bat collision rates described in Section IV.7.1.1.2 and discussed in more detail in Section IV.7.2.1.3

Note: The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table

Solar

Under Alternative 4, impacts to avian and bat species from solar development based on the planned solar capacity. The distribution of impacts under the GCP would be similar to that which is found in the Plan-wide analysis. Nonfederal DFAs would see a 4.7-fold increase in collision risks relative to baseline. 12% of the collision risks would occur in the Cadiz and Chocolate Mountains, with, 32% in Imperial Borrego Valley, 42% in West Mojave and Eastern Slopes, 10% at Pinto Lucerne Valley and Eastern Slopes, and the remaining 5% spread across the rest of the plan area.

Development in the West Mojave and Eastern Slopes subareas would occur in the Tehachapi Mountains, areas to the north of Edwards AFB, and agricultural land around

Lancaster and in the Antelope Valley. In these areas, susceptible species would include pallid bat, California leaf-nosed bat, Townsend's big-eared bat, tricolored blackbird, golden eagle, mountain plover, Bendire's thrasher, burrowing owls and to a lesser extent Swainson's hawk. Covered Activities associated with solar generation in the Pinto and Lucerne Valley subarea would affect nonfederal lands in the western part of Lucerne Valley under the GCP. Species impacted would include the same species as the West Mojave and Eastern Slopes subarea. Development in the Cadiz and Chocolate Mountains subarea under the GCP would occur in the agricultural lands around Blythe. Species habitat impacted by Covered Activities include Bendire's thrasher, burrowing owl, Gila woodpecker, golden eagle, greater sandhill crane, mountain plover, pallid bat, California leaf-nosed bat, and Townsend's big-eared bat. Anticipated impacts in the Imperial Borrego Valley subarea under the GCP would occur in agricultural and natural habitats south and west of the Salton Sea. Birds at risk from solar impacts include Bendire's thrasher, burrowing owl, California black rail, Gila woodpecker, golden eagle, greater sandhill crane, mountain plover, southwestern willow flycatcher, Swainson's hawk, Yuma clapper rail, pallid bat, California leaf-nosed bat, and Townsend's big-eared bat.

To offset potential impacts, the application of CMAs would require projects to be sited and designed to avoid impacts to occupied and suitable habitat for Covered Species, to the maximum extent feasible. Further, siting and construction CMAs require setbacks from riparian and wetland habitats which would minimize direct loss. Compensation CMAs would offset habitat loss for Covered Species. A bird and bat use and mortality monitoring program would be implemented during operations. Any proposed projects that are likely to impact bird and bat Covered Species during operation would develop and implement project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meet the approval of the appropriate DRECP Coordination Group. The goal of the project-specific Bird and Bat Covered Species Operational Actions would be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar and geothermal projects. The compensation requirements of AM-LL-4 would be based on ongoing/annual fees and the biological basis for the fee would be determined by the mortality effects as annually measured and monitored according to AM-LL-4. In combination, the application of siting, monitoring, operational and compensation CMAs would minimize impacts to resident and migratory birds.

Bat mortality from solar facilities may occur because of collision or solar flux injury. No DFAs are known to be specifically sensitive areas for bat foraging, and implementation of bat specific CMAs include 500 feet setbacks from all bat maternity roosts and 5% disturbance caps on desert scrub and woodland habitats in the vicinity of occupied pallid bat and Townsend's big-eared bat roosts would reduce impacts to bat Covered Species. Further, the development of Bird and Bat Covered Species Operational Actions (AM-LL-4)

as discussed above would greatly reduce the risk to bat populations. Consequently, application of CMAs would reduce the overall impacts to bat populations

Transmission

The transmission collision and electrocution impacts would occur from generation tie lines (collector lines), new substations, and major transmission lines (delivery lines) that deliver power to major load centers. The distribution of impacts from collector lines would mostly occur within DFAs and be similar in distribution to the generation facilities. Most of the affected areas on nonfederal lands would be in Cadiz Valley and Chocolate Mountains, the Imperial Borrego Valley, Pinto Lucerne Valley and Eastern Slopes, and the West Mojave and Eastern Slopes subareas, with 7,000 acres, 5,000 acres, 1,000 acres, and 1,000 acres of terrestrial impacts anticipated respectively. The remaining 800 acres of impacts would be spread throughout the remaining subareas.

Both large transmission lines and the network of smaller gen-tie lines would present collision and electrocution hazard to covered bird species. In particular, lines running perpendicular to migratory corridors, and/or close to bird refuges would represent a greater hazard. Such lines would include those anticipated to run parallel to the Tehachapi Mountains and those that would cross the Tehachapi mountain passes. In addition, anticipated delivery lines in Chuckwalla Valley would run parallel to I-10 corridor in the existing transmission corridors. In the Imperial Borrego Valley subarea, lines would run along the along the eastern side of Salton Sea in existing transmission corridors that run parallel to the foothills of the Chocolate Mountains; and would also run from east to west between the Imperial Valley and the San Diego area. All these lines would represent additional risk to migrating and overwintering covered avian species, due to their location. Collision risks in these areas increase during storm events when flocks of migrating birds come down to wait out the storms before continuing their migration.

All bird Covered Species may be impacted by additional transmission infrastructure. To ameliorate potential hazards, transmission projects would reduce impacts to Covered Species by implementing Plan-wide, landscape-level, natural community, and Covered Species CMAs where feasible, as discussed under the wind impacts section.

Applicants would develop and implement a project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meets the approval of the appropriate DRECP Coordination Group. The goal of the project-specific Bird and Bat Covered Species Operational Actions will be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar, geothermal, or transmission project. A bird and bat use and mortality monitoring program will be implemented during operations using current protocols and best procedures available at time of monitoring. Further, the compensation requirements in the Bird and Bat Covered Species Operational Actions

would be based on ongoing/annual fees and the mortality effects as annually measured and monitored according to the BBOS will determine the biological basis for the fee.

In addition, transmission projects would implement transmission specific CMAs that would, where feasible, bury electrical collector lines along roads (AM-TRANS-1); fit flight diverters on all transmission projects spanning or within 1,000 feet of water bodies and watercourses (AM-TRANS-2); avoid siting transmission projects that span canyons or are located on ridgelines (AM-TRANS-3); restrict transmission projects to within designated utility corridors (AM-TRANS-4). With the implementation of CMAs impacts to Covered Species would minimized.

The inclusion of the DRECP Variance Lands under Alternative 4, while not analyzed as if they were developed, have the potential to be developed in the future. Due to the remote nature of these lands, transmission lines would likely be needed to support any future development in these areas and the designation of these lands as DRECP Variance Lands has the potential to increase the risk of transmission effects on sensitive species.

Operational Impacts Take Estimates for Covered Avian and Bat Species

The following section summaries the initial estimates for take of Covered Species by operational activities that would require compensatory mitigation. Take estimates integrate all sources of mortality for each technology discussed above.

Table IV.7-302
GCP Estimated Total Take for Covered Avian and Bat Species – Alternative 4

Covered Bird and Bat Species	Solar Impact	Wind Impact	Geothermal Impact	Total Impact
Bendire's thrasher	30	20	0	50
Burrowing owl	110	10	10	130
California condor[1]	0	0	0	0
California black rail	30	0	0	30
Gila woodpecker	30	0	0	30
Golden eagle[2]	n/a	n/a	n/a	n/a
Least Bell's vireo	50	0	0	50
Mountain plover	60	20	10	90
Greater sandhill crane	10	0	0	10
Southwestern willow flycatcher	40	0	0	40
Swainson's hawk	30	10	0	40
Tricolored blackbird	50	30	0	80
Western yellow billed cuckoo	30	0	0	30
Yuma clapper rail	30	0	0	30
Grand Total Avian Species	**500**	**90**	**20**	**610**

Table IV.7-302
GCP Estimated Total Take for Covered Avian and Bat Species – Alternative 4

Covered Bird and Bat Species	Solar Impact	Wind Impact	Geothermal Impact	Total Impact
California leaf-nosed bat	10	10	0	20
Pallid bat	10	50	0	60
Townsend's big-eared bat	40	10	10	60
Grand Total Bat Species	**60**	**70**	**10**	**140**

[1] Take for California condor would not be permitted under the DRECP.
[2] Take of Golden Eagle would be permitted on a project by project basis. Based on the 2013 analysis, no more than 15 golden eagles per year would be authorized for 2014 for any new activity within the Plan Area. Take limits for the DRECP area will be re-evaluated annually based on the amount of ongoing take and population estimates of eagles within the local-area population of eagles.
Note: Totals may not sum due to rounding

IV.7.3.6.4.2 Impacts of the Reserve Design under the General Conservation Plan

In the nonfederal GCP portion of the Plan Area for Alternative 4, the Reserve Design Lands include existing conservation areas on nonfederal lands (433,000 acres), nonfederal lands within BLM LUPA conservation designations (1,160,000 acres), and Conservation Planning Areas on nonfederal lands (1,148,000 acres). Under Alternative 4, DRECP Variance Lands areas are scattered across the Plan Area including south of the Chocolate Mountains in eastern Imperial Borrego Valley subarea, in Rice Valley in northern Cadiz Valley and Chuckwalla Mountains subarea, and in the Silurian Valley area of the Kingston and Funeral Mountains and Mojave and Silurian Valley subareas. The DRECP Variance Lands lead to uncertainty about the protection and functionality of the DRECP Plan-Wide Reserve Design Envelope for Alternative 4. The following provides an analysis of the conservation that would be provided by these areas, organized by landscape, natural communities, and species.

Landscape

Habitat Linkages

Table IV.7-303 shows the conservation of the desert linkage network under Alternative 4 for the GCP. Conservation of the desert linkage network totals more than 305,000 acres (32%). None of the linkages are entirely conserved under the GCP. However, the majority of the linkage from the southern end of the Plan Area directly north to the Los Angeles/Kern County line in the West Mojave and Eastern Slopes subarea is conserved, as well as the part of the linkage across the Mojave Desert farther north. In addition to conservation of the desert linkage network, CMAs provide for the avoidance and minimization of certain linkages in the DFAs (see Section IV.7.3.2.4.1).

The designation of DRECP Variance Lands scattered across the Plan Area under Alternative 4 leads to uncertainty regarding the protection and long-term viability of the habitat linkages within the reserve design envelope.

Table IV.7-303
GCP Conservation Analysis for the Desert Linkage Network – Alternative 4

Desert Linkage Network by Ecoregion Subarea	Available Lands (acres)	Existing Conservation[1] (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Cadiz Valley and Chocolate Mountains	148,000	2,000	42,000	13,000	57,000	39%
Imperial Borrego Valley	10,000	-	2,000	400	2,000	20%
Kingston and Funeral Mountains	12,000	30	1,000	700	2,000	17%
Mojave and Silurian Valley	101,000	5,000	17,000	6,000	28,000	28%
Owens River Valley	4,000	-	600	200	800	17%
Panamint Death Valley	15,000	6,000	2,000	500	8,000	57%
Pinto Lucerne Valley and Eastern Slopes	122,000	12,000	23,000	3,000	39,000	32%
Piute Valley and Sacramento Mountains	24,000	-	2,000	2,000	4,000	17%
Providence and Bullion Mountains	49,000	4,000	5,000	4,000	13,000	27%
West Mojave and Eastern Slopes	468,000	26,000	80,000	45,000	151,000	32%
Grand Total	**952,000**	**56,000**	**173,000**	**76,000**	**305,000**	**32%**

[1] Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on nonfederal land

[3] Includes nonfederal inholdings within existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations)

Notes: Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1.2.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000;

values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Hydrological Resources

A conservation analysis for hydrological resources is provided below, including playa, seep/spring, and the four major rivers in the Plan Area (i.e., Amargosa, Colorado, Mojave and Owens) under Alternative 4 within the GCP. Conservation of riparian areas and wetlands, which co-occur with many of these hydrological resources is provided below under Natural Communities.

Playa

Playa totals 74,000 acres in the Plan Area. Overall, 21% (15,000 acres) would be conserved under Alternative 4 within the GCP. Existing Conservation would account for 15% of the conservation, BLM LUPA would account for 71%, and Conservation Planning Areas would account for 14%. Additionally, playas and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks. CMAs for playas would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided riparian or wetland natural communities.

Seep/Spring

There are 176 seep/spring locations in the Plan Area under Alternative 4 within the GCP. Overall, 52% (29 locations) of the seep/spring locations would be conserved under Alternative 4 within the GCP. The conservation of seep/spring under Alternative 4 would be less than half in all subareas. These include Imperial Borrego Valley (46%, 9 locations), Kingston and Funeral Mountains (17%, 3 locations), Mojave and Silurian Valley (35%, 3 locations), Owens River Valley (17%, 5 locations), Pinto Lucerne Valley and Eastern Slopes (38%, 13 locations), Providence and Bullion Mountains (33%, 3 locations), and West Mojave and Eastern Slopes (26%, 16 locations).

Overall, Existing Conservation would account for 40% of the conservation of seep/spring, BLM LUPA conservation designations would account for 41%, and Conservation Planning Areas would account for 19%. Additionally, seeps and springs and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks. CMAs for seep/spring locations would require compliance with all applicable laws

and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided wetland natural communities.

Major Rivers

Overall, 61% of the major rivers would be conserved under Alternative 4 within the GCP, including 25% of the Amargosa River, 33% of the Colorado River, 67% of the Mojave River, and 70% of the Owens River. Conservation Planning Areas would account for 79% of the conservation of the major rivers, Existing Conservation would account for 8%, and BLM LUPA conservation designations would account for 12%. Additionally, major rivers and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks.

Dune and Sand Resources

Overall, 21% (45,000 acres) of dunes and sand resources would be conserved under Alternative 4 within the GCP. Less than 50% of dunes and sand resources would be conserved in all subareas in the Plan Area that contain substantial acreage of dunes and sand resources. These include Cadiz Valley and Chocolate Mountains at 24% (17,000 acres), Imperial Borrego Valley at 30% (3,000 acres), Kingston and Funeral Mountains at 21% (2,000 acres), Mojave and Silurian Valley at 18% (5,000 acres), Owens River Valley at 20% (700 acres), Panamint and Death Valley at 33% (1,000 acres), Pinto Lucerne Valley and Eastern Slopes at 19% (3,000 acres), Providence and Bullion Mountains at 18% (8,000 acres) and the Western Mojave and Eastern Slopes at 19% (5,000 acres). Additionally, dunes and sand resources and associated Covered Species, natural communities and ecological functions would be avoided through application of the dune avoidance and minimization CMAs.

Environmental Gradients

The conservation analysis addresses four types of environmental gradients in the Plan Area: elevation, landforms, slope, and aspect. The conservation of these four environmental gradients under Alternative 4 within the GCP would follow the same overall pattern as Plan-wide conservation.

Natural Communities

Table IV.7-304 shows the conservation to natural communities under the GCP. A conservation summary by general community is provided below in comparison to Plan-wide conservation discussed in Section IV.7.3.2.1.2. Appendix R2 provides a detailed analysis of natural community conservation by ecoregion subarea.

California forest and woodlands

Overall, approximately 24,000 acres (23%) of California forest and woodlands would be conserved under Alternative 4 under the GCP. The majority of conservation would occur in the West Mojave and Eastern Slopes subarea. Conservation would primarily come from BLM LUPA conservation designations. In addition to conservation of California forest and woodlands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 11,000 acres (13%) of chaparral and coastal scrubs would be conserved under Alternative 4 under the GCP. The majority of conservation would occur in Conservation Planning Areas in the West Mojave and Eastern Slopes subarea. In addition to conservation of chaparral and coastal scrubs, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert conifer woodlands

Overall, approximately 19,000 acres (18%) of desert conifer woodlands would be conserved under Alternative 4 under the GCP. The majority of conservation would occur in the West Mojave and Eastern Slopes, Pinto Lucerne Valley and Eastern Slopes, and Providence and Bullion Mountains subareas. Conservation would primarily come from Conservation Planning Areas. In addition to conservation of desert conifer woodlands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert outcrop and badlands

Overall, approximately 109,000 acres (50%) of desert outcrop and badlands would be conserved under Alternative 4 in the GCP. The majority of conservation would occur in the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas. Most of the conservation would come from existing conservation. In addition to conservation of desert outcrop and badlands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert scrubs

Overall, approximately 832,000 acres (28%) of desert scrubs would be conserved under Alternative 4 under the GCP. The majority of conservation would occur in the Imperial Borrego Valley, Pinto Lucerne Valley and Eastern Slopes, and West Mojave and Eastern Slopes subareas. About 40% of the conservation would come from BLM LUPA conservation designations and about 26% would come from Conservation Planning areas. The remaining conservation would be from existing conservation. In addition to conservation of desert scrubs, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Dunes

Overall, approximately 7,000 acres (22%) of dunes would be conserved under Alternative 4 under the GCP. Most of the dunes would be conserved in the Mojave and Silurian Valley, Imperial Borrego Valley, Cadiz Valley and Chocolate Mountains, and Kingston and Funeral Mountains subareas. Conservation would primarily come from Conservation Planning Areas. In addition, CMA application would require avoidance of all dunes and prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

Grasslands

Overall, approximately 24,000 acres (12%) of grasslands would be conserved under Alternative 4 under the GCP. The majority of conservation would occur in the West Mojave and Eastern Slopes and Pinto Lucerne Valley and Eastern Slopes subareas. Almost half of the conservation would be in Conservation Planning Areas. In addition to conservation of grasslands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Riparian

Overall, approximately 74,000 acres (37%) of riparian communities would be conserved under Alternative 4 under the GCP. Most of the conservation would occur in the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas, but conservation would occur in all subareas. Almost half of the conservation would come from BLM LUPA conservation designations. In addition, CMA application would require avoidance of and setbacks from all riparian communities as well as to other CMAs that would benefit riparian communities beyond simply conservation.

Wetlands

Overall, approximately 74,000 acres (23%) of riparian communities would be conserved under Alternative 4 under the GCP. Most of the conservation would occur in the Owens River Valley, Imperial Borrego Valley, and West Mojave and Eastern Slopes subareas. Conservation would primarily come from BLM LUPA conservation designations. In addition, CMA application would require avoidance of and setbacks from Arid West freshwater emergent marsh and Californian warm temperate marsh/seep as well as other CMAs that would benefit riparian communities beyond simply conservation.

Table IV.7-304
GCP Conservation Analysis for Natural Communities – Alternative 4

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
California forest and woodland						
Californian broadleaf forest and woodland	61,000	800	10,000	700	11,000	18%
Californian montane conifer forest	44,000	7,000	4,000	2,000	13,000	29%
Chaparral and coastal scrub community (Cismontane scrub)						
Californian mesic chaparral	3,000	20	400	200	600	17%
Californian pre-montane chaparral	1,000	0	200	10	200	19%
Californian xeric chaparral	19,000	600	600	3,000	4,000	20%
Central and south coastal California seral scrub	1,000	0	0	30	30	2%
Central and South Coastal Californian coastal sage scrub	42,000	300	2,000	2,000	5,000	11%
Western Mojave and Western Sonoran Desert borderland chaparral	15,000	600	100	800	2,000	10%
Desert conifer woodlands						
Great Basin Pinyon - Juniper Woodland	104,000	7,000	2,000	10,000	19,000	18%
Desert outcrop and badlands						
North American warm desert bedrock cliff and outcrop	220,000	68,000	27,000	13,000	109,000	50%

Table IV.7-304
GCP Conservation Analysis for Natural Communities – Alternative 4

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Desert Scrub						
Arizonan upland Sonoran desert scrub	8,000	3,000	0	800	4,000	49%
Intermontane deep or well-drained soil scrub	24,000	2,000	3,000	2,000	7,000	29%
Intermontane seral shrubland	68,000	500	1,000	2,000	3,000	5%
Inter-Mountain Dry Shrubland and Grassland	152,000	21,000	12,000	6,000	39,000	25%
Intermountain Mountain Big Sagebrush Shrubland and steppe	48,000	1,000	6,000	900	8,000	18%
Lower Bajada and Fan Mojavean - Sonoran desert scrub	2,254,000	246,000	285,000	168,000	698,000	31%
Mojave and Great Basin upper bajada and toeslope	228,000	13,000	13,000	22,000	47,000	21%
Shadscale - saltbush cool semi-desert scrub	157,000	1,000	6,000	18,000	25,000	16%
Southern Great Basin semi-desert grassland	70	0	0	0	0	5%
Dunes						
North American warm desert dunes and sand flats	34,000	800	2,000	5,000	7,000	22%

Table IV.7-304
GCP Conservation Analysis for Natural Communities – Alternative 4

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Grassland						
California Annual and Perennial Grassland	196,000	8,000	5,000	11,000	23,000	12%
California annual forb/grass vegetation	7,000	400	300	200	900	13%
Riparian						
Madrean Warm Semi-Desert Wash Woodland/Scrub	96,000	3,000	23,000	7,000	34,000	35%
Mojavean semi-desert wash scrub	17,000	3,000	1,000	2,000	6,000	35%
Riparian	600	20	0	300	300	57%
Sonoran-Coloradan semi-desert wash woodland/scrub	34,000	11,000	5,000	4,000	19,000	55%
Southwestern North American riparian evergreen and deciduous woodland	6,000	400	300	2,000	2,000	42%
Southwestern North American riparian/wash scrub	47,000	3,000	3,000	6,000	13,000	27%
Wetland						
Arid West freshwater emergent marsh	4,000	40	200	1,000	1,000	33%
Californian warm temperate marsh/seep	400	0	0	80	80	20%

Table IV.7-304
GCP Conservation Analysis for Natural Communities – Alternative 4

Natural Community	Available Lands (acres)	Existing Conservation[1] (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	36,000	2,000	4,000	2,000	8,000	22%
Open Water	114,000	800	600	14,000	16,000	14%
Playa	52,000	20	11,000	300	11,000	22%
Southwestern North American salt basin and high marsh	112,000	3,000	24,000	10,000	37,000	33%
Wetland	8,000	30	200	500	700	8%
Other Land Cover						
Agriculture	693,000	5,000	2,000	3,000	10,000	1%
Developed and Disturbed Areas	399,000	500	2,000	300	2,000	1%
Not Mapped	4,000	50	60	300	400	10%
Rural	110,000	400	4,000	8,000	12,000	11%
Total	**5,420,000**	**412,000**	**459,000**	**327,000**	**1,198,000**	**22%**

[1] Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on nonfederal land.

[2] Includes nonfederal inholdings within existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations)

[3] Conservation Planning Areas include areas of the reserve design from which reserve areas would be assembled on private and other public land.

Notes: Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1.2.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Covered Species Habitat

Table IV.7-305 shows the conservation of Covered Species modeled habitat under Alternative 4 (before the application of CMAs) GCP. Generally, the percent conservation of Covered Species modeled habitat in available lands is highly variable, ranging from 1% for greater sandhill crane (primarily found in agricultural areas) to 63% for Mohave tui chub.

Conservation percentages are in large part related to the location and types of habitat modeled for the Covered Species. For example, modeled habitat for greater sandhill crane, which is primarily freshwater wetland and agriculture, is limited to the Palo Verde and Imperial valleys and is mostly within DFAs.

Much of the modeled habitats for desert tortoise and Mojave fringe-toed lizard are in the Mojave Desert in areas that occur in the BLM LUPA conservation designations. Flat-tailed horned lizard modeled habitat is only conserved in the Imperial Borrego Valley, mostly in existing conservation areas. Tehachapi slender salamander modeled habitat occurs in the Tehachapi Mountains where conservation is primarily composed of BLM LUPA conservation designations. Furthermore, the siting of the DFAs under Alternative 4 largely avoid habitat for Mojave fringe-toed lizard and Tehachapi slender salamander, and CMAs requiring avoidance of and setbacks from riparian habitat, wetland habitat, and dune habitat would further avoid and minimize the impacts on these species.

Conservation of bird species associated primarily with wetland and riparian habitats, including California black rail, least Bell's vireo, southwestern willow flycatcher, tricolored blackbird, western yellow-billed cuckoo, and Yuma clapper rail would be augmented by CMAs requiring avoidance of and setbacks from riparian and wetland habitats. Conservation of Bendire's thrasher occurs in nearly every subarea of the Plan Area, and is mainly in BLM LUPA conservation designations and existing conservation areas. Burrowing owl, widespread, but mainly associated with open areas in the West Mojave and Eastern Slopes would primarily be conserved in BLM LUPA conservation designations and Conservation Planning Areas.

California condor mainly occurs in the West Mojave and Eastern Slopes subarea so the majority of conservation is also in this subarea. Golden eagle modeled suitable habitat and associated conservation is widespread in the Plan Area with most of the conservation in BLM LUPA conservation designations and existing conservation areas. Swainson's hawk is primarily associated with the West Mojave and Eastern Slopes, Imperial Borrego Valley, and Owens River Valley subareas; of these subareas, over 20% of available suitable habitat is conserved only in the Owens River Valley subarea. In addition to conservation of suitable habitat, CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs.

Most of the modeled suitable habitat for Gila woodpecker is conserved in the Imperial Borrego Valley, with much of the conserved acreage in existing conservation. About half of

the conserved acreage of mountain plover suitable habitat is in Conservation Planning Areas in the West Mojave and Eastern Slopes subarea.

Conservation of suitable habitat for desert pupfish and Mohave tui chub is mostly in existing conservation areas. Although conservation of desert pupfish is relatively low, especially in the Imperial Borrego Valley subarea, avoidance and setback provisions for managed wetlands and agricultural drains would conserve wetland and riparian features within the agricultural matrix and provide conservation benefits to desert pupfish. Owens pupfish and Owens tui chub are conserved primarily in Conservation Planning Areas.

Conservation of suitable habitat for bighorn sheep, both inter-mountain and mountain habitat, is widespread and is mainly in BLM LUPA conservation designations and existing conservation. The siting of the DFAs under Alternative 4 largely avoid habitat for bighorn sheep. About half of the conservation of Mojave ground squirrel suitable habitat is from BLM LUPA conservation designations. Suitable habitat for the covered bat species—California leaf-nosed bat, pallid bat, and Townsend's big-eared bat—is widespread and mainly conserved in BLM LUPA conservation designations and existing conservation. In addition to conservation of suitable habitat for covered mammal species, the CMAs require avoidance of and setbacks from riparian and wetland habitat that would reduce impacts on those habitats used by Mohave ground squirrel, California leaf-nosed bat, pallid bat, and Townsend's big-eared bat.

Conservation of plant species ranges from 7% of suitable habitat for alkali mariposa-lily to 45% of suitable habitat for Barstow woolly sunflower. The proportion of suitable habitat conserved in existing conservation, BLM LUPA conservation designations, and Conservation Planning Areas varies by species. However, in addition to the conservation of modeled suitable habitat, the CMAs require surveys for plant Covered Species for all Covered Activities. In addition, the CMAs requiring avoidance of and setbacks from occupied habitat would further reduce the impacts on these species.

In addition to conservation of suitable habitat for Covered Species, compensation CMAs would offset habitat loss for all Covered Species.

Table IV.7-305
GCP Conservation Analysis for Covered Species Habitat – Alternative 4

Species	Available Lands (acres)	Existing Conservation[1] (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Amphibian/Reptile						
Agassiz's desert tortoise	2,248,000	140,000	325,000	182,000	647,000	29%
Flat-tailed horned lizard	310,000	112,000	20,000	4,000	136,000	44%
Mojave fringe-toed lizard	168,000	3,000	15,000	13,000	31,000	19%
Tehachapi slender salamander	41,000	300	6,000	500	7,000	17%
Bird						
Bendire's thrasher	405,000	35,000	31,000	26,000	92,000	23%
Burrowing owl	3,244,000	73,000	232,000	178,000	483,000	15%
California black rail	127,000	5,000	500	6,000	11,000	9%
California condor	997,000	43,000	41,000	38,000	123,000	12%
Gila woodpecker	56,000	4,000	800	2,000	7,000	12%
Golden eagle–foraging	1,498,000	154,000	225,000	113,000	492,000	33%
Golden eagle–nesting	676,000	108,000	70,000	42,000	221,000	33%
Greater sandhill crane	601,000	5,000	500	1,000	7,000	1%
Least Bell's vireo	104,000	9,000	7,000	17,000	33,000	31%
Mountain plover	811,000	6,000	2,000	11,000	20,000	2%
Southwestern willow flycatcher	258,000	6,000	12,000	17,000	36,000	14%
Swainson's hawk	1,339,000	15,000	27,000	61,000	104,000	8%
Tricolored blackbird	257,000	6,000	2,000	15,000	24,000	9%
Western yellow-billed cuckoo	111,000	2,000	5,000	23,000	31,000	28%
Yuma clapper rail	31,000	3,000	-	2,000	5,000	16%

Table IV.7-305
GCP Conservation Analysis for Covered Species Habitat – Alternative 4

Species	Available Lands (acres)	Existing Conservation[1] (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Fish						
Desert pupfish	7,000	800	10	200	1,000	14%
Mohave tui chub	100	70	-	20	90	63%
Owens pupfish	13,000	-	500	3,000	4,000	30%
Owens tui chub	13,000	-	500	3,000	4,000	30%
Mammal						
Bighorn sheep – inter-mountain habitat	465,000	40,000	58,000	24,000	121,000	26%
Bighorn sheep – mountain habitat	807,000	149,000	73,000	58,000	281,000	35%
California leaf-nosed bat	979,000	137,000	120,000	63,000	320,000	33%
Mohave ground squirrel	1,319,000	51,000	190,000	146,000	387,000	29%
Pallid bat	3,775,000	393,000	416,000	273,000	1,082,000	29%
Townsend's big-eared bat	3,510,000	308,000	374,000	254,000	936,000	27%
Plant						
Alkali mariposa-lily	117,000	200	70	8,000	8,000	7%
Bakersfield cactus	200,000	17,000	10,000	4,000	31,000	16%
Barstow woolly sunflower	82,000	3,000	22,000	12,000	37,000	45%
Desert cymopterus	137,000	2,000	29,000	17,000	49,000	36%
Little San Bernardino Mountains linanthus	130,000	5,000	6,000	5,000	16,000	12%

Table IV.7-305
GCP Conservation Analysis for Covered Species Habitat – Alternative 4

Species	Available Lands (acres)	Existing Conservation[1] (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Mojave monkeyflower	41,000	100	13,000	700	14,000	34%
Mojave tarplant	129,000	19,000	12,000	3,000	34,000	26%
Owens Valley checkerbloom	92,000	200	2,000	17,000	20,000	22%
Parish's daisy	72,000	19,000	8,000	2,000	28,000	39%
Triple-ribbed milk-vetch	3,000	900	10	400	1,000	43%

1 Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on nonfederal land

2 Includes nonfederal inholdings within existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations)

3 Conservation Planning Areas include areas of the reserve design from which reserve areas would be assembled on private and other public land.

Notes: Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1.2.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For Agassiz's desert tortoise, desert tortoise important areas were identified that include tortoise conservation areas (TCAs), desert tortoise linkages, and desert tortoise high priority habitat (see desert tortoise BGOs in Appendix C). Table IV.7-306 provides a conservation analysis for these desert tortoise important areas, organized by desert tortoise Recovery Units: Colorado Desert, Eastern Mojave, and Western Mojave. Within the Colorado Desert Recovery Unit, 36% of TCAs, linkage habitat, and high priority habitat would be conserved under Alternative 4. Within the Eastern Mojave Recovery Unit, 25% of the important areas would be conserved Alternative 4. Within the Western Mojave Recovery Unit, 35% of TCAs and linkage habitat would be conserved under Alternative 4. CMAs would require avoidance of TCAs, except for impacts associated with transmission or impacts in disturbed portions of TCAs. Additionally, the CMAs would prohibit impacts that affect the viability of desert tortoise linkages. Compensation CMAs would be required for impacts to desert tortoise, including desert tortoise important areas. The designation of DRECP Variance Lands scattered across the Plan Area under Alternative 4 leads to uncertainty regarding the protection and long-term viability of the linkage habitat for desert tortoise within the reserve design envelope.

Table IV.7-306
GCP Conservation Analysis for Desert Tortoise Important Areas – Alternative 4

Recovery Unit	Desert Tortoise Important Areas	Available Lands (acres)	Existing Conservation[1] (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Colorado Desert	High Priority Habitat	31,000	800	5,000	4,000	10,000	33%
	Linkage	63,000	100	8,000	4,000	12,000	20%
	TCA	269,000	16,000	76,000	16,000	108,000	40%
Colorado Desert Total		**363,000**	**17,000**	**89,000**	**24,000**	**131,000**	36%
Eastern Mojave	Linkage	56,000	4,000	3,000	6,000	13,000	23%
	TCA	66,000	6,000	3,000	8,000	18,000	27%
Eastern Mojave Total		**122,000**	**10,000**	**6,000**	**15,000**	**31,000**	25%
Western Mojave	Linkage	407,000	2,000	29,000	26,000	57,000	14%
	TCA	392,000	23,000	196,000	2,000	221,000	56%
Western Mojave Total		**798,000**	**25,000**	**224,000**	**29,000**	**278,000**	35%
Grand Total		**1,283,000**	**52,000**	**320,000**	**68,000**	**440,000**	**34%**

[1] Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on nonfederal land

[3] Includes nonfederal inholdings within existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations)

[3] Conservation Planning Areas include areas of the reserve design from which reserve areas would be assembled on private and other public land.

Notes: Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1.2.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For Mohave ground squirrel, Mohave ground squirrel important areas were identified that include key population centers, linkages, expansion areas, and climate change extension areas (see Mohave ground squirrel BGOs in Appendix C). Table IV.7-307 provides a conservation analysis for these Mohave ground squirrel important areas. Approximately 44% of key population centers and 50% of linkages would be conserved under Alternative 4. Expansion areas and climate change extension areas would be conserved at 50% and 32% respectively. The CMAs would prohibit impacts that affect the viability of linkages. Compensation CMAs would be required for impacts to Mohave ground squirrel, including Mohave ground squirrel important areas.

Table IV.7-307
GCP Conservation Analysis for Mohave Ground Squirrel Important Areas – Alternative 4

Mohave Ground Squirrel Important Area Type	Available Lands (acres)	Existing Conservation[1] (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations[2] (acres)	Conservation Planning Areas[3] (acres)	Total Conservation (acres)	% of Available Lands
Key Population Center	193,000	14,000	46,000	25,000	84,000	44%
Linkage	103,000	3,000	27,000	20,000	51,000	50%
Expansion Area	258,000	21,000	61,000	48,000	130,000	50%
Climate Change Extension	131,000	13,000	5,000	24,000	41,000	32%
Total	**684,000**	**50,000**	**139,000**	**117,000**	**306,000**	**45%**

1 Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on nonfederal land

2 Includes nonfederal inholdings within existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations)

3 Conservation Planning Areas include areas of the reserve design from which reserve areas would be assembled on private and other public land.

Notes: Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1.2.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Within the Plan Area, critical habitat has been designated by the USFWS for the following Covered Species: desert tortoise, southwestern willow flycatcher, desert pupfish, and Parish's daisy. For desert tortoise, approximately 51% of the desert tortoise designated critical habitat on nonfederal lands would be conserved under

Alternative 4, including 30,000 acres in existing conservation areas, 236,000 acres in BLM LUPA conservation designations, and 12,000 acres in Conservation Planning Areas. For southwestern willow flycatcher, approximately 60% of the southwestern willow flycatcher designated critical habitat on nonfederal lands would be conserved in Reserve Design Lands under Alternative 4, including 600 acres in existing conservation areas, 30 acres in BLM LUPA conservation designations, and 3,000 acres in Conservation Planning Areas. For desert pupfish, approximately 76% of the desert pupfish designated critical habitat on nonfederal lands would be conserved in Reserve Design Lands under Alternative 4, including 100 acres in existing conservation areas and 100 acres in BLM LUPA conservation designations. For Parish's daisy, approximately 36% of the Parish's daisy designated critical habitat on nonfederal lands would be conserved in Reserve Design Lands under Alternative 4, including 200 acres in BLM LUPA conservation designations.

Non-Covered Species Critical Habitat

Eight Non-Covered Species have Critical Habitat within GCP Lands. Table IV.7-308 shows the total amount of Critical Habitat and the amount within each reserve designation for Non-Covered Species. These reserve designations are considered beneficial impacts for biological resources. All or a substantial portion of each species' Critical Habitat in the GCP Lands would be within one of the conservation designations. Critical Habitat for bighorn sheep occurs mostly within existing conservation and within Conservation Planning Areas for arroyo toad, but mostly within nonfederal inholdings on BLM land for the other species.

Table IV.7-308
Critical Habitat within GCP Lands for Non-Covered Species – Alternative 4

Common Name	Acres of Critical Habitat within GCP Lands	Acres of Critical Habitat in Existing Conservation	Acres of Critical Habitat in BLM LUPA Lands (Nonfederal Inholdings)	Acres of Critical Habitat in Conservation Planning Areas	Acres in Conservation
Amargosa vole	600	0	300	0	300
Arroyo toad	4,000	0	20	3,000	3,020
Cushenbury buckwheat	200	0	100	0	100
Cushenbury milk-vetch	200	0	100	0	100
Cushenbury oxytheca	30	0	30	0	30
Lane Mountain milk-vetch	2,000	0	2,000	0	2,000
Pierson's milk-vetch	400	0	0	400	400
Peninsular Bighorn sheep	40,000	36,000	0	300	36,300

IV.7.3.6.5 Impacts Outside of Plan Area

IV.7.3.6.5.1 Impacts of Transmission Out of Plan Area

The impacts of Out of Plan Area transmission on biological resources would be the same under all alternatives. These impacts are as described for the No Action Alternative in Section IV.7.3.1.6.1 (Impacts of Transmission Out of Plan Area in No Action Alternative).

IV.7.3.6.5.2 Impacts of BLM LUPA Decisions Outside of Plan Area

Natural Communities and Other Land Covers

There are 1,057,874 acres of natural communities in BLM LUPA lands outside the plan area. Of these, 166,935 acres would be proposed NLCS lands and 266,345 would be existing and proposed ACECs, for a total of 316,764 acres (accounting for overlapping designations) of natural communities in BLM LUPA conservation under Alternative 4.

Table IV.7-309
Estimated Acres of Natural Communities in BLM LUPA Outside of Plan Area – Alternative 4

Natural Communities	Natural Communities within BLM LUPA Lands Outside Plan Area (acres)	BLM LUPA Designation†		Total Natural Communities in BLM LUPA Conservation (acres)
		Proposed NLCS (acres)	*Existing & Proposed ACECs (acres)*	
Dune/Rocky, Barren, and Un-vegetated Communities				
Barren	23,402	1,619	2,841	3,139
Forest/Woodland Communities				
Closed-Cone Pine-Cypress	287	0	231	231
Jeffrey Pine	27	0	0	0
Juniper	31,590	691	6,963	6,975
Montane Hardwood	282	0	0	0
Pinyon-Juniper	73,444	7,821	10,085	11,237
Ponderosa Pine	1,445	0	0	0
Sierran Mixed Conifer	120	0	0	0
Subalpine Conifer	189	0	0	0
Grassland Communities				
Annual Grassland	6,353	0	0	0
Riparian/Wetland Communities				
Desert Riparian	205	2	205	205
Desert Wash	22,414	3,492	9,106	9,169

Table IV.7-309
Estimated Acres of Natural Communities in BLM LUPA Outside of Plan Area – Alternative 4

Natural Communities	Natural Communities within BLM LUPA Lands Outside Plan Area (acres)	BLM LUPA Designation†		Total Natural Communities in BLM LUPA Conservation (acres)
		Proposed NLCS (acres)	*Existing & Proposed ACECs (acres)*	
Freshwater Emergent Wetland	952	0	0	0
Lacustrine	99	19	19	19
Scrub and Chaparral Communities				
Alkali Desert Scrub	189,771	26,268	10,729	24,156
Chamise-Redshank Chaparral	8,317	2,279	4,117	5,461
Coastal Scrub	12	0	0	0
Desert Scrub	572,907	105,818	208,661	231,431
Desert Succulent Shrub	35,115	2,693	957	3,311
Joshua Tree	21,034	2,091	2,135	2,820
Low Sage	3,035	2,995	895	2,995
Mixed Chaparral	12,821	2,895	5,465	7,209
Sagebrush	48,566	7,989	3,673	8,143
Other Land Covers				
Cropland	3,617	0	0	0
Irrigated Hayfield	421	0	0	0
Urban	1,449	263	263	263
Total	**1,057,874**	**166,935**	**266,345**	**316,764**

Source: State of California GAP GIS data for vegetation classifications (CDFG 1998).

Special-Status Species

Many special-status species are known to occur within proposed or existing conservation areas within the BLM LUPA lands outside of the Plan Area. See Table IV.7-310 below for the list of special-status species within conservation areas. Refer to Table IV.7-309 above to see the natural communities present within the conservation areas that provide habitat for these species. Table IV.7-50 provides a cross-walk for the special-status species and the natural communities that provide habitat for these species.

In order to analyze how the preservation and conservation of the BLM LUPA lands outside of the Plan Area will affect the special-status species listed below, the preferred BLM LUPA

conservation land boundaries within the CDCA but outside of the DRECP plan area were applied to the species' occurrence data available from CNDDB. Based on this analysis, Alternative 4 is expected to beneficially affect the 94 species shown in Table IV.7-310 that are known to occur within the NLCS and ACECs on BLM LUPA lands outside of the Plan Area, and the natural communities that provide habitat for these species shown in Table IV.7-309 above. Under Alternative 4, 57 species, dominated by plant species, are not present within existing and proposed BLM LUPA conservation lands.

Table IV.7-310
Special-Status Species Occurring in BLM LUPA Outside of Plan Area – Alternative 4

Special-Status Species Present	Federal Status[1]	State Status[2]	Present in BLM LUPA Conservation Lands (Proposed NLCS and Existing and Proposed ACECs)
Amphibians/Reptiles			
Agassiz's desert tortoise	FT	ST	Y
Arroyo toad	FE	CSC	Y
Barefoot gecko	BLM	ST	Y
Coast horned lizard	-	CSC	Y
Coachella fringe-toed lizard	FE	SC	Y
Couch's spadefoot	BLM	CSC	N
flat-tailed horned lizard	BLM, FS	CSC	Y
Rosy boa	BLM, FS	-	Y
Sierra Madre yellow-legged frog	FE	SC, CSC	Y
Fish			
desert pupfish	FE	SE	Y
Mohave tui chub	FE	SE	Y
Birds			
burrowing owl	-	CSC	Y
California black rail	BLM, BCC	ST	Y
Crissal thrasher	BLM, BCC	CSC	N
Gray vireo	BLM, BCC	CSC	N
golden eagle	BGEPA	FP	Y
Inyo California towhee	FT	SE	Y
Le Conte's thrasher	BLM	CSC	Y
Least Bell's vireo	FE	SE	N
Loggerhead shrike	BCC	CSC	N
Long-eared owl	BLM	CSC	Y
prairie falcon	BCC	-	Y

Table IV.7-310
Special-Status Species Occurring in BLM LUPA Outside of Plan Area – Alternative 4

Special-Status Species Present	Federal Status[1]	State Status[2]	Present in BLM LUPA Conservation Lands (Proposed NLCS and Existing and Proposed ACECs)
Swainson's hawk	BLM	ST	N
southwestern willow flycatcher	FE	SE	Y
Vermilion flycatcher	-	CSC	N
western snowy plover	FT	CSC	Y
Yellow warbler	BCC	CSC	Y
Yuma clapper-rail	FE, BCC	ST, FP	Y
Mammals			
American badger	-	CSC	Y
big free-tailed bat	-	CSC	N
Hoary bat	-	WBWG	Y
Long-eared myotis	BLM	-	N
Mojave ground squirrel	-	ST	Y
Nelson's bighorn sheep	BLM	-	Y
Palm Springs pocket mouse	BLM	CSC	Y
pallid bat	BLM	CSC	Y
Peninsular bighorn sheep	FE, BLM	ST, FP	Y
pocketed free-tailed bat	-	CSC	N
Spotted bat	BLM	CSC	Y
Townsend's big-eared bat	BLM	CSC	Y
Western mastiff bat	BLM	CSC	N
Western small-footed myotis	BLM	-	Y
western yellow bat	-	CSC	N
Plants			
Abrams' spurge	-	(CRPR 2.2)	N
Amargosa beardtongue	BLM	(CRPR 1B.3)	Y
annual rock-nettle	-	(CRPR 2.2)	Y
Arizona pholistoma	-	(CRPR 2.3)	Y
Arizona spurge	-	(CRPR 2.3)	Y
Ash Meadows buckwheat	-	(CRPR 2.3)	N
Bailey's greasewood	-	(CRPR 2.3)	Y
Barneby's phacelia	-	(CRPR 2.3)	N
black bog-rush	-	(CRPR 2.2)	N

Table IV.7-310
Special-Status Species Occurring in BLM LUPA Outside of Plan Area – Alternative 4

Special-Status Species Present	Federal Status[1]	State Status[2]	Present in BLM LUPA Conservation Lands (Proposed NLCS and Existing and Proposed ACECs)
bristly scaleseed	-	(CRPR 2.3)	N
brown turbans	-	(CRPR 2.3)	Y
California ayenia	-	(CRPR 2.3)	N
California satintail	-	(CRPR 2.1)	Y
California saw-grass	-	(CRPR 2.2)	Y
chaparral sand-verbena	-	(CRPR 1B.1)	Y
Charlotte's phacelia	BLM	(CRPR 1B.2)	Y
Chimney Creek nemacladus	-	(CRPR 1B.2)	N
Coachella Valley milk-vetch	FE	(CRPR 1B.2)	Y
Cove's cassia	-	(CRPR 2.2)	Y
creamy blazing star	-	(CRPR 1B.3)	Y
curly herissantia	-	(CRPR 2.3)	Y
Cushenbury buckwheat	FE	(CRPR 1B.1)	N
Cushenbury oxytheca	FE	(CRPR 1B.1)	N
Death Valley sandpaper-plant	-	(CRPR 1B.2)	Y
Dedecker's clover	-	(CRPR 1B.3)	N
desert beauty	-	(CRPR 2.3)	N
desert spike-moss	-	(CRPR 2.2)	Y
dwarf germander	-	(CRPR 2.2)	N
Emory's crucifixion-thorn	-	(CRPR 2.2)	N
forked buckwheat	-	(CRPR 1B.2)	N
Geyer's milk-vetch	-	(CRPR 2.2)	N
Gilman's buckwheat	-	(CRPR 1B.3)	N
Gilman's cymopterus	-	(CRPR 2.3)	N
Gilman's goldenbush	-	(CRPR 1B.3)	N
glandular ditaxis	-	(CRPR 2.2)	N
Greene's rabbitbrush	-	(CRPR 2.3)	N
hairy stickleaf	-	(CRPR 2.3)	Y
Hall's daisy	-	(CRPR 1B.3)	N
Harwood's milk-vetch	-	(CRPR 2.2)	Y
Hoffmann's buckwheat	-	(CRPR 1B.3)	Y
Holmgren's lupine	-	(CRPR 2.3)	N

Table IV.7-310
Special-Status Species Occurring in BLM LUPA Outside of Plan Area – Alternative 4

Special-Status Species Present	Federal Status[1]	State Status[2]	Present in BLM LUPA Conservation Lands (Proposed NLCS and Existing and Proposed ACECs)
Inflated Cima milk-vetch	-	(CRPR 1B.3)	Y
intermontane lupine	-	(CRPR 2.3)	Y
Inyo blazing star	-	(CRPR 1B.3)	Y
Inyo County star-tulip	-	(CRPR 1B.1)	N
Inyo rock daisy	-	(CRPR 1B.2)	Y
jackass-clover	-	(CRPR 2.2)	Y
Jacumba milk-vetch	-	(CRPR 1B.2)	N
July gold	-	(CRPR 1B.3)	N
Kelso Creek monkeyflower	BLM	(CRPR 1B.2)	Y
Kern Plateau bird's-beak	-	(CRPR 1B.3)	N
Kern River evening-primrose	-	(CRPR 1B.3)	Y
King's eyelash grass	-	(CRPR 2.3)	Y
knotted rush	-	(CRPR 2.3)	N
Lancaster milk-vetch	-	(CRPR 1B.1)	N
Las Animas colubrina	-	(CRPR 2.3)	Y
Latimer's woodland-gilia	-	(CRPR 1B.2)	Y
little-leaf elephant tree	-	(CRPR 2.3)	N
long-stem evening-primrose	-	(CRPR 2.2)	N
Mexican hulsea	-	(CRPR 2.3)	Y
Mormon needle grass	-	(CRPR 2.3)	N
Mountain Springs bush lupine	-	(CRPR 1B.3)	Y
Muir's tarplant	-	(CRPR 1B.3)	N
Nevada oryctes	-	(CRPR 2.1)	Y
Nine Mile Canyon phacelia	-	(CRPR 1B.2)	Y
Orcutt's linanthus	-	(CRPR 1B.3)	Y
Orcutt's woody-aster	-	(CRPR 1B.2)	Y
Orocopia sage	BLM	(CRPR 1B.3)	Y
Owen's Valley checkerbloom	BLM	SE (CRPR 1B.1)	Y
Owens Peak lomatium	-	(CRPR 1B.3)	N
Palmer's mariposa-lily	-	(CRPR 1B.2)	N
Panamint daisy	-	(CRPR 1B.2)	Y

Table IV.7-310
Special-Status Species Occurring in BLM LUPA Outside of Plan Area – Alternative 4

Special-Status Species Present	Federal Status[1]	State Status[2]	Present in BLM LUPA Conservation Lands (Proposed NLCS and Existing and Proposed ACECs)
Panamint dudleya	-	(CRPR 1B.3)	Y
Panamint Mountains buckwheat	-	(CRPR 1B.3)	Y
Panamint Mountains lupine	-	(CRPR 1B.2)	Y
Panamint rock-goldenrod	-	(CRPR 2.3)	Y
Parish's daisy	FT	(CRPR 1B.1)	Y
Parish's desert-thorn	-	(CRPR 2.3)	Y
Parry's monkeyflower	-	(CRPR 2.3)	N
Parry's spineflower	-	(CRPR 1B.1)	Y
Pierson's milk-vetch	FT	SE	N
pink fairy-duster	-	(CRPR 2.3)	Y
Pinyon Mesa buckwheat	-	(CRPR 1B.3)	Y
pinyon rockcress	-	(CRPR 2.3)	Y
prairie wedge grass	-	(CRPR 2.2)	Y
pygmy lotus	-	(CRPR 1B.3)	Y
Ripley's aliciella	-	(CRPR 2.3)	Y
Robison's monardella	-	(CRPR 1B.3)	Y
Robbins' nemacladus	-	(CRPR 1B.2)	N
San Bernardino aster	-	(CRPR 1B.2)	Y
San Bernardino milk-vetch	-	(CRPR 1B.2)	Y
San Diego button-celery	FE	SE, (CRPR 1B.1)	Y
sanicle cymopterus	-	(CRPR 1B.2)	N
Santa Rosa Mountains leptosiphon	-	(CRPR 1B.3)	N
Shockley's milk-vetch	-	(CRPR 2.2)	N
Shockley's rockcress	-	(CRPR 2.2)	Y
slender cottonheads	-	(CRPR 2.2)	N
slender-leaved ipomopsis	-	(CRPR 2.3)	Y
southern jewel-flower	-	(CRPR 1B.3)	N
Spanish needle onion	BLM	(CRPR 1B.3)	N
spear-leaf matelea	-	(CRPR 2.3)	Y
spiny-hair blazing star	-	(CRPR 2.1)	Y
sticky geraea	-	(CRPR 2.3)	Y

Table IV.7-310
Special-Status Species Occurring in BLM LUPA Outside of Plan Area – Alternative 4

Special-Status Species Present	Federal Status[1]	State Status[2]	Present in BLM LUPA Conservation Lands (Proposed NLCS and Existing and Proposed ACECs)
sweet-smelling monardella	-	(CRPR 1B.3)	N
triple –ribbed milk-vetch	FE	(CRPR 1B.2)	Y
Wheeler's dune-broom	-	(CRPR 2.2)	N
white-bracted spineflower	-	(CRPR 1B.2)	Y
Wildrose Canyon buckwheat	-	(CRPR 1B.3)	Y
yellow ivesia	-	(CRPR 2.3)	N

Notes:
CRPR = California Rare Plant Rank; Y = yes, present; N = not present

1 Federal Status – FE: Federally Endangered; FT: Federally Threatened; FD: Federally Delisted; FS: Forest Service Sensitive; BLM: Bureau Land Management Sensitive; BCC: Service Bird of Conservation Concern; BGEPA: Bald and Golden Eagle Protection Act.

2 State Status – SE: California Endangered; ST: California Threatened; SC: California Candidate for listing; CSC: California Species of Concern; FP: Fully Protected; WBWG: Western Bat Working Group species. California Rare Plant Rank (CRPR, formerly known as the CNPS List) - CRPR 1B: Considered rare, threatened, or endangered in California and elsewhere; CRPR 2: Considered rare, threatened, or endangered in California, but more common elsewhere; CRPR 3: Plants which need more information; CRPR 4: Limited distribution – a watch list.

Critical Habitat for Special-status Species

Six Special-status Species have Critical Habitat within BLM Lands outside the Plan Area. Table IV.7-311 shows the total amount of Critical Habitat and the amount within each BLM land designation for each species. No Critical Habitat for the least Bell's vireo would occur within BLM Conservation Designation. The largest portion of Critical Habitat for the remaining species would be within Areas of Critical Environmental Concern, with additional amounts within National Conservation Lands, with both designations providing specific protections for biological resources. Critical Habitat for all species except Coachella Valley fringe-toed lizard and least Bell's vireo would occur within Special Recreation Management Areas, which would also be managed to protect Critical Habitat.

Table IV.7-311
Critical Habitat within BLM LUPA Conservation Designations for Special-Status Species – Alternative 4

Common Name	Acres of Critical Habitat within BLM LUPA Lands	NLCS (acres)	ACEC (acres)	SRMA (acres)	Total in BLM Designations
Coachella Valley milk-vetch	10,000	400	500	1,000	1,900
Inyo California towhee	2,000	20	800	500	1,320
Peninsular Bighorn sheep	317,000	400	9,000	200	9,600
Coachella Valley fringe-toed lizard	12,000	800	2,000	0	2,800
Desert tortoise	173,000	21,000	99,000	55,000	175,000
Least Bell's vireo	600	0	0	0	0

[1] Includes overlapping designations

Landscape Habitat Linkages and Wildlife Movement Corridors

As detailed in Vol. III.7.13.2.4, Landscape Habitat Linkages and Wildlife Movement Corridors, there are important linkages and corridors North of the Plan Area within the Owens Valley, and Inyo Mountains, and Southwest of the Plan Area within and adjacent to the Coachella Valley. The NCLS lands and ACECs proposed for Alternative 4 offer protection at critical locations within these corridors, providing a benefit to Landscape Habitat Linkages and Wildlife Movement Corridors outside of the Plan Area.

IV.7.3.6.6 CEQA Significance Determination for the Alternative 4

Impact BR-1: Siting, construction, decommissioning, and operational activities would result in loss of native vegetation.

Alternative 4 would result in loss of native vegetation that would be an adverse impact to natural communities and the species these communities support. These impacts would be concentrated in the Cadiz Valley and Chocolate Mountains, Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas and would predominantly impact desert scrubs, wetlands, grasslands, and desert outcrop and badlands. The adverse effects of the loss of native vegetation would be avoided and minimized through the implementation of avoidance and minimization CMAs and compensation CMAs established to offset the impacts of Covered Activities. These CMAs would contribute to the overall DRECP conservation strategy, which includes conservation within Reserve Design Lands and a coordinated Monitoring and Adaptive Management Program. Implementation of the CMAs as part of the overall DRECP conservation strategy, plus implementation of

Mitigation Measure BR-1a for rare natural communities, would reduce the adverse effects from the loss of native vegetation to a less than significant impact with mitigation.

Impact BR-2: Siting, construction, decommissioning, and operational activities would result in adverse effects to jurisdictional waters and wetlands.

Alternative 4 would result in adverse effects to jurisdictional waters and wetlands. These impacts would occur in saltbush scrub and playa natural communities determined to be jurisdictional and open water areas of the Salton Sea. The adverse effects to jurisdictional waters and wetlands would be avoided and minimized through the implementation existing applicable laws and regulations, through implementation of avoidance and minimization CMAs, and through compensation CMAs established to offset the impacts of Covered Activities. These CMAs would contribute to the overall DRECP conservation strategy, which includes conservation within Reserve Design Lands and a coordinated Monitoring and Adaptive Management Program. Implementation of the CMAs as part of the overall DRECP conservation strategy would reduce the adverse effects to jurisdictional waters and wetlands to a less than significant impact.

Impact BR-3: Siting, construction, decommissioning, and operational activities would result in degradation of vegetation.

Alternative 4 would result in degradation of vegetation that would be an adverse impact to natural communities and the species these communities support. These impacts would be concentrated in the Cadiz Valley and Chocolate Mountains, Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas and would predominantly impact desert scrubs, wetlands, grasslands, and desert outcrop and badlands. The adverse effects of vegetation degradation would be avoided and minimized through the implementation of avoidance and minimization CMAs and compensation CMAs established to offset the impacts of Covered Activities. These CMAs would contribute to the overall DRECP conservation strategy, which includes conservation within Reserve Design Lands and a coordinated Monitoring and Adaptive Management Program. Implementation of the CMAs as part of the overall DRECP conservation strategy would reduce the adverse effects of degradation of vegetation to a less than significant impact.

Impact BR-4: Siting, construction, decommissioning, and operational activities would result in loss of listed and sensitive plants; disturbance, injury, and mortality of listed and sensitive wildlife; and habitat for listed and sensitive plants and wildlife.

Alternative 4 would result in an adverse impact to listed and sensitive plants and wildlife and habitat for listed and sensitive plant and wildlife. These impacts would be concentrated in the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, Pinto Lucerne Valley and Eastern Slopes, and West Mojave and Eastern Slopes subareas. Some of the adverse

effects to plant and wildlife species and habitat would be minimized through the implementation of avoidance and minimization CMAs and compensation CMAs established to offset the impacts of Covered Activities. These CMAs would contribute to the overall DRECP conservation strategy, which includes conservation within Reserve Design Lands and a coordinated Monitoring and Adaptive Management Program. The inclusion of DRECP Variance Lands in this alternative and the uncertainty of future management of these lands undermines the strength of the DRECP Plan-Wide Reserve Design Envelope for Alternative 4. Although the DRECP Variance lands have the potential to undermine the integrity and long-term conservation value of the conservation strategy for desert tortoise and other species under Alternative 4, implementation of the CMAs as part of the overall DRECP conservation strategy would reduce the adverse effects from the uncertainty of future conservation and management of plants and wildlife and their habitat to a less than significant impact.

Implementation of the CMAs as part of the overall DRECP conservation strategy would reduce the adverse effects from the loss of plant and wildlife Non-Covered Species and their habitat to a less than significant impact with mitigation.

Impact BR-5: Siting, construction, decommissioning, and operational activities could result in loss of nesting birds (violation of the federal Migratory Bird Treaty Act and California Fish and Game Code Sections 3503, 3503.5, 3511, and 3513).

Alternative 4 has the potential to result in an adverse impact resulting from the loss of nesting birds. These impacts have the potential to occur anywhere Covered Activities are implemented. This potential adverse would be avoided and minimized through the implementation of avoidance and minimization CMAs developed to comply with existing applicable laws and regulations related to nesting birds. Implementation of the CMAs would reduce the potential adverse effects of the loss of nesting birds to a less than significant impact.

Impact BR-6: Siting, construction, decommissioning, and operational activities would adversely affect habitat linkages and wildlife movement corridors, the movement of fish, and native wildlife nursery sites.

Alternative 4 would result in adverse impacts to habitat linkages and wildlife movement corridors. These impacts to habitat linkages and movement of migratory birds would be concentrated in the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas. The potential adverse effects to habitat linkages and wildlife movement would minimized through the implementation of the DRECP conservation strategy, including the reserve design envelope and the Monitoring and Adaptive Management Program. Additionally, impacts of habitat fragmentation and population isolation would be minimized through requiring renewable energy development to occur within DFAs and through the

implementation of avoidance and minimization CMAs and compensation CMAs established to offset the impacts of Covered Activities. The inclusion of DRECP Variance Lands in this alternative and the uncertainty of future management of these lands undermines the strength of the DRECP Plan-Wide Reserve Design Envelope for Alternative 4. Although the DRECP Variance lands leads to uncertainty regarding the future protection and long-term viability of habitat linkages within the DRECP Plan-Wide Reserve Design Envelope for Alternative 4, implementation of the CMAs as part of the overall DRECP conservation strategy would reduce the adverse effects on habitat linkages and wildlife movement to a less than significant impact.

Impact BR-7: Siting, construction, decommissioning, and operational activities would result in habitat fragmentation and isolation of populations of listed and sensitive plants and wildlife.

Alternative 4 would have the potential to result in adverse impacts of habitat fragmentation and population isolation. The potential adverse effects of habitat fragmentation and population isolation would avoided and minimized through the implementation of the DRECP conservation strategy, including the reserve design envelope and the Monitoring and Adaptive Management Program. Additionally, impacts of habitat fragmentation and population isolation would be avoided and minimized through requiring renewable energy development to occur within DFAs and through the implementation of avoidance and minimization CMAs and compensation CMAs established to offset the impacts of Covered Activities. Implementation of the DRECP and the CMAs as part of the overall DRECP conservation strategy would reduce the adverse effects of habitat fragmentation and population isolation to a less than significant impact.

Impact BR-8: Construction of generation facilities or transmission lines would result in increased predation of listed and sensitive wildlife species.

Alternative 4 would result in an increase in predator populations in the Plan Area, which would adversely affect susceptible Covered Species. As part of the overall DRECP conservation strategy, implementation of a Common Raven management actions (AM-PW-6) would reduce the adverse effects to Covered and Non-Covered Species to a less than significant impact.

Impact BR-9: Operational activities would result in avian and bat injury and mortality from collisions, thermal flux or electrocution at generation and transmission facilities.

Alternative 4 would result in loss of avian and bat Covered Species that would be an adverse impact to avian and bat populations. These impacts would be concentrated in the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, Pinto Lucerne Valley and Eastern Slopes, and West Mojave and Eastern Slopes subareas. The adverse effects of avian

and bat injury and mortality would be avoided and minimized through the implementation of avoidance and minimization CMAs and compensation CMAs established to offset the impacts of Covered Activities. These CMAs would contribute to the overall DRECP conservation strategy, which includes conservation within Reserve Design Lands and a coordinated Monitoring and Adaptive Management Program. Implementation of the CMAs as part of the overall DRECP conservation strategy, Bird and Bat Covered Species Operational Actions would reduce the adverse effects to a less than significant impact.

The level of impact on avian and bat Non-Covered Species would be as discussed for the Covered Species.

IV.7.3.6.7 Comparison of Alternative 4 with Preferred Alternative

Chapter IV.27 presents a comparison of all action alternatives and the No Action Alternative across all disciplines. This section summarizes the comparison of Alternative 4 with the Preferred Alternative.

IV.7.3.6.7.1 Alternative 4 Compared with Preferred Alternative for Plan-Wide DRECP

Alternative 4 would concentrate renewable energy development into over 1.6 million acres of DFAs (7% of the Plan Area) as compared to the approximately 2 million acres of DFAs (9% of the Plan Area) under the Preferred Alternative. Under both Alternative 4 and the Preferred Alternative, 87% of the DFAs are characterized by low terrestrial intactness. Alternative 4 would result in approximately 0.4 million acres less conservation acreage within Reserve Design Lands, and the BLM LUPA conservation designations vary considerably between these alternatives. Alternative 4 BLM LUPA conservation designations would include 38% ACEC designations, 54% NLCS designations, and 8% wildlife allocation designations, whereas the Preferred Alternative BLM LUPA conservation designations would include 32% ACEC designations, 65% NLCS designations, and 3% wildlife allocation designations. The following provides a comparative analysis for specific biological resources.

Impacts to Natural Communities

A summary of the differences between effects under this Alternative and the Preferred Alternative is provided below.

California forest and woodlands

Overall, approximately 100 acres of California forest and woodlands would be impacted under both Alternative 4 and the Preferred Alternative. Compared to the Preferred Alternative, there are fewer impacts from transmission in the Pinto Lucerne Valley and

Eastern Slopes subarea, but greater impacts from solar development in the West Mojave and Eastern Slopes subarea.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 2,000 acres of chaparral and coastal scrubs would be impacted under both Alternative 4 and the Preferred Alternative. Compared to the Preferred Alternative, there are fewer impacts from wind and transmission in the Pinto Lucerne Valley and Eastern Slopes but fewer impacts from solar development in the West Mojave and Eastern Slopes subarea under Alternative 4.

Desert conifer woodlands

Overall, approximately 1,000 acres of desert conifer woodlands would be impacted under both Alternative 4 and the Preferred Alternative. Compared to the Preferred Alternative, there are fewer impacts from solar and transmission in the Pinto Lucerne Valley and Eastern Slopes and from transmission in the West Mojave and Eastern Slopes subareas.

Desert outcrop and badlands

Overall, approximately 12,000 acres of desert outcrop and badlands would be impacted under Alternative 4, compared to 10,000 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts in the Cadiz Valley and Chocolate Mountains, Owens River Valley, and Panamint Death Valley, mostly from solar and transmission. However, there are fewer impacts in the Imperial Borrego Valley, Mojave and Silurian Valley, Pinto Lucerne Valley and Eastern Slopes, Providence and Bullion Mountains, and West Mojave and Eastern Slopes subareas.

Desert scrubs

Overall, approximately 93,000 acres of desert scrubs would be impacted under Alternative 4, compared to 92,000 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts in the Cadiz Valley and Chocolate Mountains, Owens River Valley, Panamint Death Valley, Providence and Bullion Mountains, and West Mojave and Eastern Slopes subareas, mostly from solar and transmission. There are fewer impacts in the Imperial Borrego Valley, Kingston and Funeral Mountain, Mojave and Silurian Valley, and Pinto Lucerne Valley and Eastern Slopes.

Dunes

Like the Preferred Alternative, impacts to dune communities would be minimized under Alternative 4 since application of the CMAs would require that dune communities be avoided to the maximum extent feasible in DFAs. In addition, CMA application would

prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

Grasslands

Overall, approximately 8,000 acres of grasslands would be impacted under Alternative 4, compared to 6,000 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater total impacts in the Cadiz Valley and Chocolate Mountains and West Mojave and Eastern Slopes subareas.

Riparian

Like the Preferred Alternative, impacts to riparian communities would be avoided under Alternative 4 since application of the CMAs would require that riparian communities be avoided to the maximum extent feasible in DFAs. In addition, setbacks from riparian communities would be required that range from 200 feet for Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub to 0.25 mile for Southwestern North American riparian evergreen and deciduous woodland and Southwestern North American riparian/wash scrub.

Wetlands

Overall, approximately 11,000 acres of wetlands would be impacted under Alternative 4, compared to 10,000 acres under the Preferred Alternative. Like the Preferred Alternative, impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep would not occur under Alternative 4 since application of the CMAs would require that these communities be avoided to the maximum extent feasible in DFAs, including a 0.25-mile setback.

Compared to the Preferred Alternative, there are fewer impacts mostly in the West Mojave and Eastern Slopes subarea with fewer impacts from transmission to North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat in this subarea under Alternative 4. However, there are more impacts to open water at the Salton Sea in the Imperial Borrego Valley subarea under Alternative 4. There are also more impacts in the Cadiz Valley and Chocolate Mountains, mostly to Southwestern North American salt basin and high marsh and North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat. There are also greater impacts to Southwestern North American salt basin and high marsh in the Panamint Death Valley subarea. The differences to the other subareas are not as great.

Conservation of Natural Communities

A summary of the differences between conservation under this Alternative and the Preferred Alternative is provided below.

California forest and woodlands

Overall, approximately 62,000 acres (41%) of California forest and woodlands would be conserved under both Alternative 4 and the Preferred Alternative. Compared to the Preferred Alternative, more California forest and woodland is conserved in the West Mojave and Eastern Slopes subarea, but less is conserved in the Pinto Lucerne Valley and Eastern Slopes subarea.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 31,000 acres (28%) of chaparral and coastal scrubs would be conserved under both Alternative 4 and the Preferred Alternative.

Desert conifer woodlands

Overall, approximately 185,000 acres (65%) of desert conifer woodlands would be conserved under Alternative 4, compared to 186,000 acres (65%) under the Preferred Alternative. Compared to the Preferred Alternative, there is less conservation, mostly from BLM LUPA Conservation Planning Designations, in the Pinto Lucerne Valley and Eastern Slopes subarea.

Desert outcrop and badlands

Overall, approximately 1,237,000 acres (77%) of desert outcrop and badlands would be conserved under Alternative 4, compared to 1,295,000 acres (80%) under the Preferred Alternative. Although conservation between these subareas is similar overall, the distribution of conservation varies. Compared to the Preferred Alternative, there is greater conservation of this general community only in the Mojave and Silurian Valley subarea. There is less conserved acreage in the remaining subareas except the West Mojave and Eastern Slopes, Kingston and Funeral Mountains, and Panamint Death Valley subareas where conservation of desert outcrop and badlands is roughly the same for both alternatives. The greatest differences between the alternatives are in the Cadiz Valley and Chocolate Mountains and Piute Valley and Sacramento Mountains subareas.

Desert scrubs

Overall, approximately 9,430,000 acres (71%) of desert scrubs would be conserved under Alternative 4, compared to 9,729,000 acres (74%) under the Preferred Alternative. Only the West Mojave and Eastern Slopes subarea has greater conservation of desert scrubs under Alternative 4 compared to the Preferred Alternative. The largest difference is in the Cadiz Valley and Chocolate Mountains subarea.

Dunes

Overall, approximately 207,000 acres (73%) of dunes would be conserved under Alternative 4, compared to 209.000 acres (74%) under the Preferred Alternative. The most substantial differences between the alternatives are fewer BLM LUPA conservation designations in the Mojave and Silurian Valley, Providence and Bullion Mountains, and Cadiz Valley and Chocolate Mountains subareas under Alternative 4 compared to the Preferred Alternative. Imperial Borrego Valley is the only subarea with greater conservation under Alternative 4.

In addition to conservation, impacts to dune communities would be minimized under both alternatives since application of the CMAs would require that dune communities be avoided to the maximum extent feasible in DFAs. In addition, CMA application would prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

Grasslands

Overall, approximately 52,000 acres (22%) of grasslands would be conserved under Alternative 4, compared to 54,000 acres (22%) under the Preferred Alternative. Compared to the Preferred Alternative, there is more conservation of grasslands in the West Mojave and Eastern Slopes subarea and more conservation in the Pinto Lucerne Valley and Eastern Slopes subarea.

Riparian

Overall, approximately 621,000 acres (63%) of riparian communities would be conserved under Alternative 4, compared to 715,000 acres (72%) under the Preferred Alternative. The most substantial difference between the alternatives is much less conservation in BLM LUPA conservation designations in the Imperial Borrego Valley subarea. No subareas have greater conservation of riparian communities under Alternative 4 than under the Preferred Alternative.

In addition to conservation, impacts to riparian communities would be avoided under both alternatives since application of the CMAs would require that riparian communities be avoided to the maximum extent feasible in DFAs. In addition, setbacks from riparian communities would be required that range from 200 feet for Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub to 0.25 mile for Southwestern North American riparian evergreen and deciduous woodland and Southwestern North American riparian/wash scrub.

Wetlands

Overall, approximately 440,000 acres (51%) of wetlands would be conserved under Alternative 4, compared to 433,000 acres (50%) under the Preferred Alternative. There is more conserved acreage of wetlands in the Providence and Bullion Mountains and West Mojave and Eastern Slopes subareas. All of the other subareas have fewer or about the same conserved acres of wetland communities under Alternative 4.

In addition to conservation, impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep would not occur under both alternatives since application of the CMAs would require that these communities be avoided to the maximum extent feasible in DFAs, including a 0.25-mile setback.

Impacts to Covered Species

Overall, there are fewer impacts to suitable habitat for Covered Species under Alternative 4 compared to the Preferred Alternative. Less suitable habitat for Covered Species would be impacted under Alternative 3 in four subareas: Imperial Borrego Valley, Kingston and Funeral Mountains, Mojave and Silurian Valley, and Pinto Lucerne Valley and Eastern Slopes subareas with the greatest difference in the Imperial Borrego Valley subarea.

More suitable habitat for Covered Species would be impacted under Alternative 4 compared to the Preferred Alternative for two of the four amphibian/reptile Covered Species—Mojave fringe-toed lizard and Tehachapi slender salamander—but the difference in impacts to Tehachapi slender salamander suitable habitat are minimal. Alternative 4 would result in less impact to desert tortoise important areas as compared to the Preferred Alternative. Six of the covered bird species have greater impacts to their suitable habitat under Alternative 4 including some birds associated with riparian/wetland areas (i.e., least Bell's vireo, tricolored blackbird, western yellow-billed cuckoo) and birds associated with other habitats (Bendire's thrasher, California condor, golden eagle). Suitable habitat for all of the covered fish species except Mohave tui chub, which would not be impacted under either alternative, would have greater impacts under Alternative 4, but the impacts would not differ by more than 60 acres for any of the species. Suitable habitat for bighorn sheep (both mountain and inter-mountain), California leaf-nosed bat, Mohave ground squirrel, pallid bat, and Townsend's big-eared bat would be impacted more under Alternative 4 than under the Preferred Alternative. Alternative 4 would result in greater impacts to Mohave ground squirrel important areas compared to the Preferred Alternative. Only three of the ten covered plant species would have greater impacts under Alternative 4 compared to the Preferred Alternative, including alkali mariposa-lily, Bakersfield cactus, and Owens Valley checkerbloom. However, CMA application would further avoid and minimize impacts to suitable habitat for Covered Species under both alternatives as described in Section IV.7.3.3.1.1.

Impacts to Non-Covered Species

Overall, Alternative 4 could result in greater potential impacts to suitable habitat for nearly half of the Non-Covered Species evaluated as compared to the Plan-wide Preferred Alternative.

More suitable habitat for Non-Covered Species has the potential to be impacted under the Preferred Alternative compared to the Alternative 4 for the spring- and cave-restricted invertebrates evaluated. However, under both alternatives, application of CMAs and general siting design would further protect spring-, cave-, and dune-restricted species by avoiding renewable development in these habitats. More suitable habitat for Non-Covered Species could be impacted under Alternative 4 for fewer amphibian/reptile species compared to the Preferred Alternative. Most of the bird Non-Covered Species have greater potential impacts to suitable habitat under Alternative 4 as compared to the Preferred Alternative. Both of the fish Non-Covered species could potentially have greater impacts under the Preferred Alternative; however, implementation of CMAs would preclude development within the habitat for the fish, thus further protecting this species under either Alternative. Greater potential impacts to suitable habitat for more than half the mammal Non-Covered Species could occur under Alternative 4 as compared to the Preferred Alternative. Less than half of the plant Non-Covered Species could have greater potential impacts under Alternative 4 compared to the Preferred Alternative.

Conservation of Covered Species

Overall, there is less conservation of Covered Species habitat under Alternative 4 compared to the Preferred Alternative. There is less conservation in BLM LUPA conservation designations under Alternative 4, but more conservation in Conservation Planning Areas. Compared to the Preferred Alternative there is only greater conservation of suitable habitat for Covered Species in the West Mojave and Eastern Slopes subarea under Alternative 4.

More suitable habitat for the following species would be conserved under Alternative 4 compared to the Preferred Alternative: flat-tailed horned lizard, California black rail, greater sandhill crane, Mohave ground squirrel, Barstow woolly sunflower, desert cymopterus, Bakersfield cactus, and Mojave tarplant. For the remaining species, more or about the same acreage of suitable habitat would be conserved under the Preferred Alternative.

In addition to conservation of suitable habitat for Covered Species, compensation CMAs would offset habitat loss for all Covered Species under both alternatives. CMAs also require avoidance and minimization of Covered Species in DFAs and CMAs would be applied in the Reserve to benefit Covered Species.

Impacts to the Desert Linkage Network

Overall, more acres of the desert linkage network would be impacted under Alternative 4 compared to the Preferred Alternative. The biggest differences between the Alternatives would be in the Cadiz Valley and Chocolate Mountains subarea.

To avoid and minimize impacts to the desert linkage network beyond what is presented in Table IV.7-265, Covered Activities will be sited and designed to maintain the function of wildlife connectivity in the following linkage and connectivity areas: (1) across Interstate 10 centered on Wiley's Well Road to connect the Mule and McCoy mountains, (2) across Interstate 10 to connect the Chuckwalla and Palen mountains, (3) across Interstate 10 to connect the Chuckwalla Mountains to the Chuckwalla Valley east of Desert Center, and (4) the confluence of Milpitas Wash and Colorado River floodplain. In addition, the Riparian and Wetland Natural Communities and Covered Species CMAs will contribute to maintaining and promoting habitat connectivity and wildlife movement.

Conservation of the Desert Linkage Network

Overall, there is greater conservation of the desert linkage network under the Preferred Alternative compared to Alternative 4. Some areas with more conservation under the Preferred Alternative compared to Alternative 4 include the Cadiz Valley and Chocolate Mountains subarea, the linkage along East Mesa in the Imperial Borrego Valley, the Chuckwalla Valley, Palo Verde Mesa, Vidal Valley, Silurian Valley, and near Squaw Mountain. In addition to conservation of the desert linkage network, CMAs provide for the avoidance and minimization of certain linkages in the DFAs.

Operational Impacts

The operation of renewable energy would result in the degradation of vegetation through the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants as well as the disturbance of wildlife due to noise, predator avoidance behavior, and light and glare. Alternative 4 would result in slightly larger levels of terrestrial operational impacts in the Plan Area when compared with the Preferred Alternative. Additionally, the distribution of vegetation degradation and wildlife disturbance as a result of operational impacts would be distributed differently under the Preferred Alternative and Alternative 4. The degradation of vegetation and disturbance of wildlife during operations in Alternative 4 would be more heavily distributed in the Cadiz Valley and Chocolate Mountains and West Mojave and Eastern Slopes subareas, while the Preferred Alternative would have a larger distribution of terrestrial operational impacts in the Imperial Borrego Valley subarea. Both the Preferred Alternative and Alternative 4 would direct renewable energy development to DFAs that are designed to minimize impacts to biological resources and both would

implement CMAs to avoid, minimize, and compensate for operational impacts from vegetation degradation and wildlife disturbance.

Alternative 4 would result in an estimated 2,300 fewer bird collisions and 10,700 fewer bat collision with wind turbines than the Preferred Alternative. However, this would result in a 5,212 acres increase in solar development, with a proportional increase in the associated operational impacts. The distribution of solar impacts would weighted towards Cadiz and Chocolate Mountains and away from Imperial Borrego Valley when compared to the Preferred Alternative. Alternative 4 would result in a reduction of operational impacts from solar in all subareas. However, impacts from transmission would be similar throughout the plan area, with only transmission impacts in Pinto Lucerne Valley being greater than the Preferred Alternative.

IV.7.3.6.7.2 Alternative 4 Compared with Preferred Alternative for the BLM Land Use Plan Amendment

Alternative 4 would concentrate renewable energy development in approximately 258,000 acres of DFAs on BLM-administered lands as compared to the approximately 367,000 acres of DFAs on BLM-administered lands under the Preferred Alternative. Alternative 4 would designate 4.4 million acres of BLM LUPA conservation designations on BLM-administered lands, including 2.6 million acres of NLCS, 1.5 million acres of ACEC, and 274,000 acres of wildlife allocation, whereas the Preferred Alternative would designate 4.9 million acres of BLM LUPA conservation designations on BLM-administered lands, including 3.5 million acres of NLCS, 1.4 million acres of ACEC, and over 18,000 acres of wildlife allocation under the Preferred Alternative. The following provides a comparative analysis for specific biological resources.

Impacts to Natural Communities

A summary of the differences between effects under this Alternative and the Preferred Alternative is provided below.

California forest and woodlands

Overall, approximately 30 acres of California forest and woodlands would be impacted under Alternative 4 for the BLM LUPA, compared to 40 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are fewer impacts from transmission in the Pinto Lucerne Valley and Eastern Slopes subarea.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 200 acres of chaparral and coastal scrubs would be impacted under Alternative 4 for the BLM LUPA, compared to 300 acres under the Preferred Alternative.

Compared to the Preferred Alternative, there are fewer impacts from solar and transmission in the Pinto Lucerne Valley and Eastern Slopes. There are also fewer impacts from solar and transmission development in the West Mojave and Eastern Slopes subarea.

Desert conifer woodlands

Overall, approximately 300 acres of desert conifer woodlands would be impacted under Alternative 4, compared to 400 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are fewer impacts from solar and transmission in the Pinto Lucerne Valley and Eastern Slopes, and fewer impacts from solar in the West Mojave and Eastern Slopes subareas.

Desert outcrop and badlands

Overall, approximately 10,000 acres of desert outcrop and badlands would be impacted under Alternative 4 for the BLM LUPA, compared to 8,000 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts in the Cadiz Valley and Chocolate Mountains. There are fewer impacts in the remaining impacted subareas with the largest difference in the Imperial Borrego Valley subarea.

Desert scrubs

Overall, approximately 42,000 acres of desert scrubs would be impacted under Alternative 4 for the BLM LUPA, compared to 46,000 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts in the Cadiz Valley and Chocolate Mountains. Impacts are about the same or less in the remaining impacted subareas under Alternative 4, especially the Imperial Borrego Valley subarea.

Dunes

Like the Preferred Alternative, impacts to dune communities would be minimized under Alternative 4 for the BLM LUPA since application of the CMAs would require that dune communities be avoided to the maximum extent feasible in DFAs. In addition, CMA application would prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

Grasslands

Overall, approximately 400 acres of grasslands would be impacted under Alternative 4 for the BLM LUPA, compared to 500 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts from solar development and transmission in the Cadiz Valley and Chocolate Mountains. However, total impacts are fewer under this Alternative primarily because there are fewer impacts from solar in the

West Mojave and Eastern Slopes subarea. There are also fewer impacts in the Pinto Lucerne Valley and Eastern Slopes subarea.

Riparian

Like the Preferred Alternative, impacts to riparian communities would be avoided under Alternative 4 for the BLM LUPA since application of the CMAs would require that riparian communities be avoided to the maximum extent feasible in DFAs. In addition, setbacks from riparian communities would be required that range from 200 feet for Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub to 0.25 mile for Southwestern North American riparian evergreen and deciduous woodland and Southwestern North American riparian/wash scrub.

Wetlands

Overall, approximately 3,000 acres of wetlands would be impacted under Alternative 4, compared to 4,000 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts in the Cadiz Valley and Chocolate Mountain and Panamint Death Valley subareas. There are fewer impacts primarily in the West Mojave and Eastern Slopes subarea, but other subareas have the about the same or fewer impacts. Like the Preferred Alternative, impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep would not occur under Alternative 4 since application of the CMAs would require that these communities be avoided to the maximum extent feasible in DFAs, including a 0.25-mile setback.

Conservation of Natural Communities for the BLM LUPA

A summary of the differences between conservation under this Alternative and the Preferred Alternative is provided below.

California forest and woodlands

Overall, approximately 38,000 acres (86%) of California forest and woodlands would be conserved under both Alternative 4 and the Preferred Alternative for BLM LUPA. Compared to the Preferred Alternative, there is more conservation of California forest and woodlands in ACECs and less conservation in NLCS areas under Alternative 4.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 11,000 acres (62%) of chaparral and coastal scrubs would be conserved under both Alternative 4 and the Preferred Alternative for the BLM LUPA. Overall, there is less conserved acreage in NLCS areas.

Desert conifer woodlands

Overall, approximately 41,000 acres (82%) of desert conifer woodlands would be conserved under both Alternative 4 and under the Preferred Alternative for the BLM LUPA. Compared to the Preferred Alternative, there is less conservation in NLCS areas, but more conservation in ACECs under Alternative 4.

Desert outcrop and badlands

Overall, approximately 960,000 acres (80%) of desert outcrop and badlands would be conserved under Alternative 4, compared to 1,017,000 acres (85%) under the Preferred Alternative for the BLM LUPA. Compared to the Preferred Alternative, there is less or about the same conservation of this general community in all of the Plan Area's subareas except the Mojave and Silurian Valley subarea. The greatest difference between the alternatives in terms of conservation of desert outcrop and badlands is in the Cadiz Valley and Chocolate Mountains and Piute Valley and Sacramento Mountains subareas.

Desert scrubs

Overall, approximately 5,539,000 acres (79%) of desert scrubs would be conserved under Alternative 4, compared to 5,835,000 acres (83%) under the Preferred Alternative for the BLM LUPA. Only the West Mojave and Eastern Slopes subarea has more conservation under Alternative 4 than under the Preferred Alternative. The largest difference between the alternatives is in the Cadiz Valley and Chocolate Mountains subarea.

Dunes

Overall, approximately 86,000 acres (68%) of dunes would be conserved under Alternative 4, compared to 89,000 acres (70%) under the Preferred Alternative for the BLM LUPA. The largest differences are in more acreage of dunes conserved in the Cadiz Valley and Chocolate Mountains, Mojave and Silurian Valley, and Owens River Valley subareas under the Preferred Alternative compared to Alternative 4. Overall, there is more conservation of dunes in wildlife allocations (wholly located in the Cadiz Valley and Chocolate Mountains) under Alternative 4, but less conservation in NLCS areas and ACECs.

In addition to conservation, impacts to dune communities would be minimized under both alternatives since application of the CMAs would require that dune communities be avoided to the maximum extent feasible in DFAs. In addition, CMA application would prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

Grasslands

Overall, approximately 22,000 acres (76%) of grasslands would be conserved under Alternative 4, compared to 23,000 acres (80%) under the Preferred Alternative for the BLM LUPA. Compared to the Preferred Alternative, there is less conservation in the Pinto Lucerne Valley and Eastern Slopes subarea in NLCS areas. All other subareas with conservation, including the Imperial Borrego Valley, Mohave and Silurian Valley, Panamint Death Valley, and West Mojave and Eastern Slopes subareas are roughly equal in total conservation compared to the Preferred Alternative. Overall, there is less conservation of grasslands in NLCS areas and more in ACECs and wildlife allocations under Alternative 4.

Riparian

Overall, approximately 421,000 acres (65%) of riparian communities would be conserved under Alternative 4, compared to 515,000 acres (80%) under the Preferred Alternative for the BLM LUPA. The most substantial difference between the alternatives is much less conservation in the ACECs in the Imperial Borrego Valley subarea. All subareas have less total conservation under Alternative 4.

In addition to conservation, impacts to riparian communities would be avoided under both alternatives since application of the CMAs would require that riparian communities be avoided to the maximum extent feasible in DFAs. In addition, setbacks from riparian communities would be required that range from 200 feet for Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub to 0.25 mile for Southwestern North American riparian evergreen and deciduous woodland and Southwestern North American riparian/wash scrub.

Wetlands

Overall, approximately 189,000 acres (64%) of wetlands would be conserved under Alternative 4, compared to 184,490 acres (62%) under the Preferred Alternative. There is more conserved acreage of wetlands in the West Mojave and Eastern Slopes and Providence and Bullion Mountains subareas. All of the other subareas have the same or fewer conserved acres of wetland communities. Overall, there are fewer conserved acres in NLCS and ACECs areas and more conservation in wildlife allocations.

In addition to conservation, impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep would not occur under both alternatives since application of the CMAs would require that these communities be avoided to the maximum extent feasible in DFAs, including a 0.25-mile setback.

Impacts to Covered Species

Overall, there are lesser impacts to suitable habitat for Covered Species under Alternative 4 compared to the Preferred Alternative for the BLM LUPA. The only subareas where more suitable habitat for Covered Species would be impacted under Alternative 4 would be the Cadiz Valley and Chocolate Mountains, Owens River Valley, and Panamint Death Valley subareas. Compared to the Preferred Alternative, Alternative 4 would have less impacts to suitable habitat for 24 Covered Species. However, CMA application would further avoid and minimize impacts to suitable habitat for Covered Species under both alternatives as described in Section IV.7.3.3.1.1.

Impacts to Non-Covered Species

Overall, Alternative 4 only has the potential for greater impacts to suitable habitat for a few Non-Covered Species as compared to the BLM LUPA Preferred Alternative.

More suitable habitat for Non-Covered Species has the potential to be impacted under the Preferred Alternative compared to the Alternative 4 for the spring- and cave-restricted invertebrates evaluated. However, under both alternatives, application of CMAs and general siting design would further protect spring-, cave-, and dune-restricted species by avoiding renewable development in these habitats. More suitable habitat for Non-Covered Species could be impacted under the Preferred Alternative compared to Alternative 4 for all amphibian/reptile species. The majority of bird Non-Covered Species would have greater potential impacts to suitable habitat under the Preferred Alternative as compared to Alternative 4. Both of the fish Non-Covered species could potentially have greater impacts under the Preferred Alternative; however, implementation of CMAs would preclude development within the habitat for the fish, thus further protecting this species under either Alternative. Greater potential impacts to suitable habitat for all of the mammal Non-Covered Species could occur under the Preferred Alternative as compared to Alternative 4. Only 1 of the 61 plant Non-Covered Species could have greater potential impacts under Alternative 4 compared to the Preferred Alternative.

Conservation of Covered Species

Overall, there is less conservation of Covered Species habitat under Alternative 4 compared to the Preferred Alternative. There is much less conservation in NLCS areas under Alternative 4, but more conservation in ACECs and wildlife allocations. The only subarea with wildlife allocations under the Preferred Alternative is the West Mojave and Eastern Slopes subarea, but wildlife allocations are included in four of the subareas under Alternative 4. There is only greater conservation of Covered Species habitat in the West Mojave and Eastern Slopes subarea under Alternative 4 compared to the Preferred

Alternative. The greatest difference between alternatives among the remaining subareas would be in the Cadiz Valley and Chocolate Mountains subarea.

More suitable habitat for the following species would be conserved under Alternative 4 compared to the Preferred Alternative: flat-tailed horned lizard, California black rail, California condor, greater sandhill crane, mountain plover, Mohave ground squirrel, Bakersfield cactus, Mojave tarplant, and Barstow woolly sunflower. For the remaining species, more or roughly the same amount of suitable habitat would be conserved under the Preferred Alternative.

In addition to conservation of suitable habitat for Covered Species, compensation CMAs would offset habitat loss for all Covered Species under both alternatives. CMAs also require avoidance and minimization of Covered Species in DFAs and CMAs would be applied in the Reserve to benefit Covered Species.

Impacts to the Desert Linkage Network

Overall, more acres of the desert linkage network would be impacted under Alternative 4 compared to the Preferred Alternative for the BLM LUPA, but impacts are not considerably different. The difference in impacts to the desert linkage network for the BLM LUPA are least between Alternative 4 and the Preferred Alternative compared to all other Alternatives and the Preferred Alternative.

To avoid and minimize impacts to the desert linkage network beyond what is presented in Table IV.7-280, Covered Activities will be sited and designed to maintain the function of wildlife connectivity in the following linkage and connectivity areas: (1) across Interstate 10 centered on Wiley's Well Road to connect the Mule and McCoy mountains, (2) across Interstate 10 to connect the Chuckwalla and Palen mountains, (3) across Interstate 10 to connect the Chuckwalla Mountains to the Chuckwalla Valley east of Desert Center, and (4) the confluence of Milpitas Wash and Colorado River floodplain. In addition, the Riparian and Wetland Natural Communities and Covered Species CMAs will contribute to maintaining and promoting habitat connectivity and wildlife movement.

Conservation of the Desert Linkage Network

Overall, there is greater conservation of the desert linkage network under the Preferred Alternative compared to Alternative 4 for the BLM LUPA. Some areas with more conservation under the Preferred Alternative compared to Alternative 4 include the Cadiz Valley and Chocolate Mountains subarea, the linkage along East Mesa in the Imperial Borrego Valley, the Chuckwalla Valley, Palo Verde Mesa, Vidal Valley, Silurian Valley, and near Squaw Mountain. In addition to conservation of the desert linkage network, CMAs provide for the avoidance and minimization of certain linkages in the DFAs.

Operational Impacts

The operation of renewable energy would result in the degradation of vegetation through the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants as well as the disturbance of wildlife due to noise, predator avoidance behavior, and light and glare. Alternative 4 would result in a slightly smaller amount of terrestrial operational impacts when compared with the Preferred Alternative. Additionally, the distribution of vegetation degradation and wildlife disturbance as a result of operational impacts would be distributed differently under the Preferred Alternative and Alternative 4. The degradation of vegetation and disturbance of wildlife during operations in Alternative 4 would be more heavily distributed in the Cadiz Valley and Chocolate Mountains subarea on BLM Land, whereas the Preferred Alternative would have a greater distribution of terrestrial operational impacts within the Imperial Borrego Valley subarea on BLM Land. Both the Preferred Alternative and Alternative 4 would direct renewable energy development to DFAs that are designed to minimize impacts to biological resources and both would implement CMAs to avoid, minimize, and compensate for operational impacts from vegetation degradation and wildlife disturbance.

Operational impacts of Alternative 4 on bird and bat Covered Species would result in an estimated 1,000 fewer bird collisions and 5,000 fewer bat collision with wind turbines than the Preferred Alternative. Differences would be especially marked in Pinto and Lucerne Valley and Cadiz Valley and Chocolate Mountains subareas. There would also be a 3,399 acres decrease in solar development, with a proportional decrease in the associated operational impacts. The distribution of solar impacts would be weighted towards Cadiz and Chocolate Mountains and away from Imperial Borrego Valley and other areas, when compared to the Preferred Alternative. Impacts follow similar patterns to the solar development namely there would be a significant increase in transmission impacts in Cadiz Valley and Chocolate Mountains coupled with a reduction in impacts elsewhere within the Plan area.

IV.7.3.6.7.3 Alternative 4 Compared with Preferred Alternative for NCCP

The impacts of the NCCP for Alternative 4 are the same as those defined in Section IV.7.3.2.1 for the Plan-wide analysis. As a result, the comparison of Alternative 4 with the Preferred Alternative for the NCCP is the same as described above for Plan-wide DRECP.

IV.7.3.6.7.4 Alternative 4 Compared with Preferred Alternative for the GCP

Alternative 4 would allow renewable energy development on approximately 1.3 million acres of DFAs on nonfederal lands as compared to the approximately 1.6 million acres of DFAs on nonfederal lands under the Preferred Alternative. Under Alternative 4, the

Reserve Design Lands would include approximately 2.7 million acres on nonfederal lands, including 434,000 acres within existing conservation areas, 1.2 million acres within BLM LUPA conservation designations, and 1.1 million acres within Conservation Planning Areas. This compares to the Preferred Alternative that includes approximately 2.7 million acres of Reserve Design Lands on nonfederal lands, including 434,000 acres within existing conservation areas, 1.2 million acres within BLM LUPA conservation designations, and 1.1 million acres within Conservation Planning Areas. The following provides a comparative analysis for specific biological resources.

Impacts to Natural Communities

A summary of the differences between effects under this Alternative and the Preferred Alternative is provided below.

California forest and woodlands

Overall, approximately 100 acres of California forest and woodlands would be impacted under Alternative 4 under the GCP, compared to 80 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts from solar development in the West Mojave and Eastern Slopes subarea.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 1,000 acres of chaparral and coastal scrubs would be impacted under both Alternative 4 and the Preferred Alternative under the GCP. Compared to the Preferred Alternative, there are greater impacts from solar in the Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas. However, there are fewer impacts from wind and transmission in the Pinto Lucerne Valley and Eastern Slopes subarea and from transmission in the West Mojave and Eastern Slopes subarea.

Desert conifer woodlands

Overall, approximately 1,000 acres of desert conifer woodlands would be impacted under Alternative 4, compared to 900 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts from solar development in the Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas, but fewer impacts from transmission and wind in those subareas.

Desert outcrop and badlands

Overall, approximately 2,000 acres of desert outcrop and badlands would be impacted under Alternative 4, compared to 1,000 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts in the Cadiz Valley

and Chocolate Mountains, Imperial Borrego Valley, Mojave and Silurian Valley, Owens River Valley, and Panamint Death Valley subareas, with the greatest difference being in the Cadiz Valley and Chocolate Mountains subarea. There are fewer impacts in the Providence and Bullion Mountains subarea under Alternative 4 under the GCP than under the Preferred Alternative.

Desert scrubs

Overall, approximately 51,000 acres of desert scrubs would be impacted under Alternative 4 under the GCP, compared to 46,000 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts from solar development and fewer impacts from wind overall. The Imperial Borrego Valley and Owens River Valley are the only subareas with geothermal effects under Alternative 4 under the GCP, which exceed those of the Preferred Alternative. GCP impacts from transmission are roughly the same under Alternative 4 compared to the Preferred Alternative. The largest difference between the alternatives is in greater impacts from solar in the West Mojave and Eastern Slopes subarea.

Dunes

Like the Preferred Alternative, impacts to dune communities would be minimized under Alternative 4 under the GCP since application of the CMAs would require that dune communities be avoided to the maximum extent feasible in DFAs. In addition, CMA application would prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

Grasslands

Overall, approximately 7,000 acres of grasslands would be impacted under Alternative 4, compared to 6,000 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts from solar in the Cadiz Valley and Chocolate Mountains and West Mojave and Eastern Slopes subareas under Alternative 4.

Riparian

Like the Preferred Alternative, impacts to riparian communities would be avoided under Alternative 4 under the GCP since application of the CMAs would require that riparian communities be avoided to the maximum extent feasible in DFAs. In addition, setbacks from riparian communities would be required that range from 200 feet for Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub to 0.25 mile for Southwestern North

American riparian evergreen and deciduous woodland and Southwestern North American riparian/wash scrub.

Wetlands

Overall, approximately 6,000 acres of wetlands would be impacted under Alternative 4 under the GCP, compared to 5,000 acres under the Preferred Alternative. Like the Preferred Alternative, impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep would not occur under Alternative 4 since application of the CMAs would require that these communities be avoided to the maximum extent feasible in DFAs, including a 0.25-mile setback.

Compared to the Preferred Alternative, there are greater impacts in all impacted subareas. The largest difference is in more impacts to open water at the Salton Sea in the Imperial Borrego Valley subarea under Alternative 4 Total impacts from transmission are slightly more under the Preferred Alternative.

Conservation of Natural Communities for the GCP

A summary of the differences between conservation under this Alternative and the Preferred Alternative is provided below.

California forest and woodlands

Overall, approximately 24,000 acres (23%) of California forest and woodlands would be conserved under both Alternative 4 and the Preferred Alternative for the GCP.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 11,000 acres (13%) of chaparral and coastal scrubs would be conserved under both Alternative 4 and the Preferred Alternative for the GCP.

Desert conifer woodlands

Overall, approximately 19,000 acres (18%) of desert conifer woodlands would be conserved under both Alternative 4 and the Preferred Alternative for the GCP.

Desert outcrop and badlands

Overall, approximately 109,000 acres (50%) of desert outcrop and badlands would be impacted under Alternative 4, compared to 110,000 acres (50%) under the Preferred Alternative for the GCP. Compared to the Preferred Alternative, there is less conservation of this general community in the Owens River Valley subarea from BLM LUPA conservation designations. There is about the same conserved acreage in the remaining subareas.

Desert scrubs

Overall, approximately 832,000 acres (28%) of desert scrubs would be conserved under Alternative 4, compared to 833,000 acres (28%) under the Preferred Alternative for the GCP. The largest difference between the alternatives is in more conservation under Alternative 4 in the West Mojave and Eastern Slopes subarea, but there is also more conservation of desert scrubs in the Kingston and Funeral Mountains subarea. Of the remaining subareas with less conservation under Alternative 4, the Mojave and Silurian Valley, Owens River Valley, and Pinto Lucerne Valley and Eastern Slopes subareas have the largest difference between the two alternatives.

Dunes

Overall, approximately 7,000 acres (21%) of dunes would be conserved under both Alternative 4 and the Preferred Alternative for the GCP. There is more conservation of dunes in the Imperial Borrego Valley and Pinto Lucerne Valley and Eastern Slopes subareas, and less in the Owens River Valley subarea under Alternative 4 compared to the Preferred Alternative.

In addition to conservation, impacts to dune communities would be minimized under both alternatives since application of the CMAs would require that dune communities be avoided to the maximum extent feasible in DFAs. In addition, CMA application would prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

Grasslands

Overall, approximately 24,000 acres (12%) of grasslands would be conserved under both Alternative 4 and the Preferred Alternative for the GCP.

Riparian

Overall, approximately 74,000 acres (37%) of riparian communities would be conserved under both Alternative 4 and the Preferred Alternative for the GCP. Although very similar overall, the distribution and conservation components between the alternatives differs. The most substantial difference between the alternatives is less conservation in the Owens River Valley subarea. There is less conservation from BLM LUPA conservation designations overall and more conservation from Conservation Planning Areas under Alternative 4.

In addition to conservation, impacts to riparian communities would be avoided under both alternatives since application of the CMAs would require that riparian communities be avoided to the maximum extent feasible in DFAs. In addition, setbacks from riparian

communities would be required that range from 200 feet for Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub to 0.25 mile for Southwestern North American riparian evergreen and deciduous woodland and Southwestern North American riparian/wash scrub.

Wetlands

Overall, approximately 74,000 acres (23%) of wetlands would be impacted under Alternative 4, compared to 72,000 acres (22%) under the Preferred Alternative for the GCP. There is more conserved acreage of wetlands primarily in the Providence and Bullion Mountains and West Mojave and Eastern Slopes subareas. There is less conserved acreage primarily in the Owens River Valley from BLM LUPA conservation designations.

In addition to conservation, impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep would not occur under both alternatives since application of the CMAs would require that these communities be avoided to the maximum extent feasible in DFAs, including a 0.25-mile setback.

Impacts to Covered Species Habitat

Overall, there are greater impacts to suitable habitat for Covered Species under Alternative 4 compared to the Preferred Alternative for the GCP. The only subareas where less suitable habitat for Covered Species would impacted under Alternative 4 would be the Imperial Borrego Valley, Pinto Lucerne Valley and Eastern Slopes, and Kingston and Funeral Mountains subareas. More suitable habitat for Covered Species would be impacted under Alternative 4 compared to the Preferred Alternative except for the following species: burrowing owl, California black rail, Gila woodpecker, greater sandhill crane, mountain plover, southwestern willow flycatcher, Mojave monkeyflower, and Mojave tarplant, However, CMA application would further avoid and minimize impacts to suitable habitat for Covered Species under both alternatives as described in Section IV.7.3.3.1.1.

Impacts to Non-Covered Species

Overall, Alternative 4 only has the potential for greater impacts to suitable habitat for the Non-Covered Species as compared to the GCP Preferred Alternative.

Potential impacts to dune-restricted species would be the same for both Alternatives. In addition, application of CMAs and general siting design would further protect spring-, cave-, and dune-restricted species by avoiding renewable development in these habitats under both alternatives. More suitable habitat for Non-Covered Species could be impacted under Alternative 4 compared to Preferred Alternative for the majority of amphibian/reptile species. All of the bird Non-Covered Species have greater potential impacts to suitable

habitat under Alternative 4 as compared to the Preferred Alternative. Greater potential impacts to suitable habitat for the majority of mammal Non-Covered Species could occur under Alternative 4 as compared to the Preferred Alternative. More than half of the plant Non-Covered Species could have greater potential impacts under Alternative 4 compared to the Preferred Alternative.

Conservation of Covered Species Habitat

Overall, there is less conservation of Covered Species habitat under Alternative 4 compared to the Preferred Alternative for the GCP. There is more conservation in Conservation Planning Areas but less conservation in BLM LUPA conservation designations under Alternative 4. There is greater conservation of Covered Species habitat in the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, Kingston and Funeral Mountains, Providence and Bullion Mountains, and West Mojave and Eastern Slopes subareas under Alternative 4 compared to the Preferred Alternative. Of the remaining subareas, the largest difference between the alternatives is in the Owens River Valley subarea.

More suitable habitat for the following species would be conserved under Alternative 4 compared to the Preferred Alternative: Agassiz's desert tortoise, flat-tailed horned lizard

Mojave fringe-toed lizard, burrowing owl, California black rail, Gila woodpecker, greater sandhill crane, mountain plover, Yuma clapper rail, desert pupfish, California leaf-nosed bat, Mohave ground squirrel, alkali mariposa-lily, Bakersfield cactus, Barstow woolly sunflower, desert cymopterus, Mojave monkeyflower, and Mojave tarplant. For the remaining species, more or about the same suitable habitat would be conserved under the Alternative 4.

In addition to conservation of suitable habitat for Covered Species, compensation CMAs would offset habitat loss for all Covered Species under both alternatives. CMAs also require avoidance and minimization of Covered Species in DFAs and CMAs would be applied in the Reserve to benefit Covered Species.

Impacts to the Desert Linkage Network

Overall, more acres of the desert linkage network would be impacted under Alternative 4 compared to the Preferred Alternative for the GCP. The biggest differences between the Alternatives would be in the Pinto Lucerne Valley and Eastern Slopes, Cadiz Valley and Chocolate Mountains, and Mojave and Silurian Valley subareas.

To avoid and minimize impacts to the desert linkage network beyond what is presented in Table IV.7-300, Covered Activities will be sited and designed to maintain the function of wildlife connectivity in the following linkage and connectivity areas: (1) across Interstate

10 centered on Wiley's Well Road to connect the Mule and McCoy mountains, (2) across Interstate 10 to connect the Chuckwalla and Palen mountains, (3) across Interstate 10 to connect the Chuckwalla Mountains to the Chuckwalla Valley east of Desert Center, and (4) the confluence of Milpitas Wash and Colorado River floodplain. In addition, the Riparian and Wetland Natural Communities and Covered Species CMAs will contribute to maintaining and promoting habitat connectivity and wildlife movement.

Conservation of the Desert Linkage Network

Overall, there is greater conservation of the desert linkage network under Alternative 4 compared to the Preferred Alternative for the GCP. The biggest difference in acreage would be in the West Mojave and Eastern Slopes subarea. In addition to conservation of the desert linkage network, CMAs provide for the avoidance and minimization of certain linkages in the DFAs.

Operational Impacts

The operation of renewable energy would result in the degradation of vegetation through the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants as well as the disturbance of wildlife due to noise, predator avoidance behavior, and light and glare. Alternative 4 would result in slightly greater levels of terrestrial operational impacts when compared with the Preferred Alternative. Additionally, the distribution of vegetation degradation and wildlife disturbance as a result of operational impacts would be distributed differently under the Preferred Alternative and Alternative 4. The degradation of vegetation and disturbance of wildlife during operations in Alternative 4 would be more heavily distributed in the Cadiz Valley and Chocolate Mountains and West Mojave and Eastern Slopes subareas than in the Preferred Alternative; however, the Preferred Alternative would distribute more terrestrial operational impacts in the Imperial Borrego Valley subarea within the GCP. Both the Preferred Alternative and Alternative 4 would direct renewable energy development to DFAs that are designed to minimize impacts to biological resources and both would implement CMAs to avoid, minimize, and compensate for operational impacts from vegetation degradation and wildlife disturbance.

For the GCP, the differences in size and distribution of impacts found in the Preferred Alternative and the No Action alternative would reflect the distribution of impacts identified in the Plan wide analysis. The notable exception would be in the Cadiz and Chocolate Mountains subarea, in which a high proportion of DFAs are within BLM jurisdiction.

Implementation of the Preferred Alternative would result in lower rates of collisions and fewer terrestrial impacts associated with wind than the No Action Alternative because the anticipated technology mix includes less wind and therefore fewer turbines and less

ground disturbance. Compared to the No Action Alternative, the Preferred Alternative impacts from wind would be less concentrated, they would be spread across the Cadiz and Chocolate Mountains, Pinto Lucerne Valley, and West Mojave and Eastern Slopes subareas rather than concentrated in the latter.

As stated, impacts in the West Mojave and Eastern Slopes, and the Imperial Borrego Valley subareas would be considerably lower in the Preferred Alternative. Conversely, anticipated impacts in other subareas would be higher. In particular, in the Pinto Lucerne Valley and Eastern Slopes, and in the Cadiz Valley and Chocolate Mountains subareas impacts would be greater than the No Action alternative. The shift in distribution of impacts would result in more impacts to the following species: California black rail, Gila woodpecker, greater sandhill crane, western yellow-billed cuckoo, and Yuma clapper rail

When compared to the No Action Alternative, the anticipated quantity of solar across the plan in the Preferred Alternative would be greater and therefore likely impacts to, both terrestrial and aerial, Covered Species would be proportionally greater. Impacts in the West Mojave, where opportunities for wind development would be reduced, would lead to increased impacts from solar generation. In contrast, effects in the Eastern Mojave, north of the I-15 corridor, bordering Nevada and in the Providence and Bullion Mountain subarea would be considerably lower those anticipated from the No Action Alternative. Impacts in Impacts in the Imperial Borrego Valley subarea would be similar between alternatives.

Implementation of applicable CMAs discussed in IV.7.3.2.1 to reduce impacts to migratory birds would systematically minimize adverse effects of generation projects. Whereas the No Action alternative would rely on project by project mitigation to minimize impacts.

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IV.8 CULTURAL RESOURCES

The analysis in this chapter addresses potential impacts to cultural resources from implementing the Covered Activities of the Desert Renewable Energy Conservation Plan (DRECP or Plan). These activities include renewable energy and transmission development, the reserve design, the (BLM) Land Use Plan Amendments (LUPA), the U.S. Fish and Wildlife Service (USFWS) General Conservation Plan (GCP), and the California Department of Fish and Wildlife Natural Community Conservation Plan (NCCP) that are defined for each alternative (see Volume II for description of Development Focus Areas [DFAs], Reserve Design Lands, and Study Area Lands). The primary consideration in quantifying impacts to cultural resources at this programmatic level of analysis is the extent to which cultural resources (see Volume III, Chapter III.8, Cultural Resources) intersect with and are affected by the proposed DFAs, transmission, and conservation lands within the reserve design.

Appendix R2.8 includes 41 tables supporting this chapter. The tables present data that estimates the number of archaeological and built-environment resources that might be impacted by the different components and technology types for each alternative. These tables present the estimated number of resources by ecoregion subarea per alternative and the number of acres impacted by technology type (solar, wind, geothermal, and transmission). The tables also identify the number of estimated resources in DRECP component lands (conservation lands, DFAs [Available Development Areas for No Action Alternative], and BLM Land Use Plan Amendment areas). Specific tables are referenced throughout the following analysis.

IV.8.1 Approach to Impact Analysis

As described in Chapter III.8, a cultural resource is an object or definite location of human activity, occupation, use, or significance identifiable through field inventory, historical documentation, or oral evidence. Cultural resources include prehistoric and historic sites, districts, areas, cultural landscapes, and locations of traditional cultural or religious importance to specified social and/or cultural groups. Cultural resources include the entire spectrum of objects and places, from artifacts to cultural landscapes (Parker and King 1998).

Historically, cultural resources analyses have focused on sites; however, large-scale, landscape-focused analyses for cultural resources have been supported by recent federal and state policies. Department of the Interior (DOI) Secretary Sally Jewell issued Secretarial Order No. 3330 on October 31, 2013, which directed DOI agencies to "avoid potential environmental impacts from projects through steps such as advanced landscape-level planning that identifies areas suitable for development because of relatively low natural or cultural resource conflicts" (SO 3330 2013). In April 2014 the Energy and Climate Change Task Force issued their report, *A Strategy for Improving the Mitigation Policies and Practices of*

the Department of the Interior (Clement et al. 2014). This report highlights the challenges and opportunities associated with developing and implementing an effective mitigation policy. It also describes the key principles and actions necessary to successfully shift from project-by-project management to consistent, landscape-scale, science-based management of DOI lands and resources. Similarly, the California Office of Historic Preservation has specifically called out a need for cultural resources professionals to work on renewable energy projects to shift focus from the site level to the landscape level of assessment (OHP 2013). The landscape approach is particularly appropriate for programmatic documents. The current programmatic analysis acknowledges the challenges in such an approach and uses select existing data to formulate an initial framework that will facilitate transitioning to a comprehensive, detailed use of project-specific quality data at a regional scale in the future.

IV.8.1.1 General Methods

In analyzing potential impacts of concern to cultural resources, this chapter utilizes information presented in Chapter III.8 and Appendix R2.8. Only a small percentage of the Plan Area has been subjected to pedestrian survey; therefore, the total number and type of cultural resources is unknown. Existing data were used to estimate the number of archaeological and built-environment resources that might be impacted. The number of possible traditional cultural properties (TCPs) or presence and size of any landscapes was not estimated as these types of resources are not part of the dataset used to quantify cultural resources. However, both types of resources are likely to be impacted by project activities and larger DFA footprints will likely affect a greater number of TCPs and cultural landscapes through impacts to access and viewshed as well as ground disturbance. Impacts to these resources are therefore characterized in a qualitative manner. To estimate the number of potentially impacted archaeological and built-environment resources, the BLM Cultural Resources Geodatabase (CRG) for the Plan Area was overlaid with the DFAs and Conservation Planning Areas for each alternative. The CRG, compiled through December 2012 by BLM, contains archaeological and built-environment resource locations as well as survey information, but lacks data on cultural landscapes or TCPs.

These data were used to determine both archaeological and built-environment resource density for the overall Plan Area and for each of the 10 ecoregion subareas. Density was calculated from the number of known archaeological and built-environment resources (Volume III, Table III.8-4), divided by the number of acres surveyed within each ecoregion subarea for tables analyzing by ecoregion subarea. For tables with analysis at the Plan Area level, the resource density was calculated using the known resources divided by the number of acres surveyed in the entire Plan Area. All ecoregion subareas and the Plan Area have a resource density of less than one, with the exception of the Owens River Valley. As a final step for analysis, resource densities were multiplied by the number of acres within the

different land types to arrive at an estimate of the number of resources within DFAs and the Conservation Planning Areas. These estimates were used for the following analyses.

Because the DFAs only identify where future projects can be built, and because the exact locations of the projects within the DFA footprints are unknown, the analysis of direct impacts emphasizes a maximum development scenario (i.e., that projects could be built anywhere within a DFA), so the entire area of each DFA is considered to be the potential impact area. Indirect impacts are discussed more generally since they can extend beyond the boundaries of DFA footprints. The analysis describes common impacts to cultural resources from solar, wind, and geothermal projects and their associated transmission lines. The general discussion includes TCPs and landscapes as well as archaeological and built-environment resources. The more specific analysis defines both the impacts that could occur to all types of cultural resources within each alternative and the potential number of archaeological and built-environment resources that exist within areas designated as reserves.

Over 50 renewable energy projects already exist or are under construction in the Plan Area. Five are on BLM lands and 47 are on private or non-BLM public lands. These projects have impacted resources within their boundaries; this chapter only considers impacts from future renewable energy development (Appendix O).

IV.8.1.2 CEQA Standards of Significance

CEQA has established the following significance standards to determine the significance of impacts to cultural resources from a proposed action or project. Impacts would be significant if the project would:

- Cause a substantial adverse change in the significance of a historical resource or unique archaeological resource (14, California Code of Regulations [CCR] Section 15064.[a][5] and California Public Resources Code [PRC] Section 21083.2).
- Disturb any human remains, including those interred outside of formal cemeteries.

IV.8.2 Typical Impacts Common to All Alternatives

Impacts to cultural resources would be addressed on a project-specific basis in supplemental California Environmental Quality Act (CEQA), National Environmental Policy Act (NEPA), and National Historic Preservation Act (NHPA) processes for the evaluation of renewable energy and transmission projects. These projects require project-specific environmental review that addresses project-specific impacts to cultural resources as part of the approval process. Some of these impacts would be consulted about in government-to-government consultations between lead agencies and tribal governments. Impact analyses

to cultural resources are based on typical impacts from renewable energy developments and can be described as:

- Physical damage or alteration to all or part of a cultural resource.
- Isolation of the cultural resource or alteration of the character of the resource's setting when that character contributes to the resource's significance for the National Register of Historic Places/California Register of Historical Resources (NRHP/CRHR).
- Introduction of visual, auditory, olfactory, or atmospheric elements that are out of character with the resource or cause changes that may alter its setting.

While impacts to cultural resources would be determined on a project-specific basis, the development of solar, wind, and geothermal projects and their associated transmission lines share many of the same types of impacts. Certain activities associated with energy development have a greater potential for adversely affecting cultural resources than others. Ground-disturbing activities (e.g., grading and digging) have the highest potential for disturbing cultural resources; however, pedestrian and vehicular traffic and the indirect impacts of earth-moving activities (e.g., soil erosion), may also have an adverse effect. Visual, olfactory, and auditory changes can affect the integrity of setting and feeling associated with cultural resources. Cultural resources are nonrenewable and, once damaged, cannot be recovered.

Short-term impacts would occur for only short periods of time during and after proposed actions (e.g., construction noise). Long-term impacts would occur for extended periods of time after development and construction are complete. All ground disturbances are considered long-term impacts. Many long-term impacts are, however, not permanent and may ultimately be reversed during project decommissioning. This is especially true with impacts to setting.

IV.8.2.1 Impacts of Renewable Energy and Transmission Development

Utility-scale renewable energy and transmission development has the potential to impact all types of cultural resources (see Chapter III.8). The activities associated with this development include site characterization, construction and decommissioning, and operations and maintenance. Examples of activities performed during each of these development phases include:

- Site reconnaissance and surveys if they result in a major disturbance of a resource
- Ground-disturbing activities
- Structure installation

- Structure removal
- Restoration and revegetation
- Structure interference
- General maintenance activities

While impacts to cultural resources differ in important aspects, based on the particular technologies employed, many impacts are common to all technologies and development approaches.

IV.8.2.1.1 Impacts of Site Characterization

Activities associated with preconstruction site characterization for all renewable energy technologies could physically damage cultural resources if ground disturbance is required (e.g., grading for new roads). During initial preconstruction activities for wind energy development, impacts include geotechnical borings, installation of temporary meteorological stations, and access roads and staging areas for each of these. Drilling temperature gradient wells during the exploration phase are impacts specific to geothermal projects. Shallow core sampling may also occur for solar projects during facility siting investigations.

Site characterization activities associated with site reconnaissance and surveys generally involve conducting site-specific surveys for various resources, including biological species and cultural resources. There is little potential for the damage of cultural resources during surveys unless sub-surface testing is required to assess the potential NRHP/CRHR eligibility of a resource, as this testing would result in a major disturbance of the resource. Methods employed to identify cultural resources within an undertaking's or project's Area of Potential Effects (APE)/project area of analysis may include:

1. Contacting regional Information Centers of the California Historical Resource Information System (CHRIS) for information on previously recorded sites and surveys conducted in or near the APE/project area of analysis.
2. Conducting research at local historical societies and museums or other repositories of historical information.
3. Contacting the Native American Heritage Commission (NAHC) to identify properties in the NAHC Sacred Lands File and the Native American groups with which to consult.
4. Consulting with the appropriate Native American groups to identify important cultural resources and traditional places (consultation efforts should also focus on those issues and resources identified in Volume III, Section III.9.4).

5. Geological and geomorphological characterizations of the APE/project area of analysis (which can include backhoe trenching).
6. Conducting pedestrian field surveys to identify any existing cultural resources.
7. Failure to make a good faith effort to identify cultural resources within the APE/project area of analysis could result in noncompliance with federal or state laws and guidelines and the degradation of these resources during ground-disturbing activities.

Geological and geomorphological characterization can support site reconnaissance efforts by identifying the potential for surficial and buried cultural resources; however, there is the potential to damage cultural resources from trenches or other ground disturbance.

Ground-disturbing activities during site reconnaissance and surveys would result from installing temporary meteorological stations or creating temporary access roads for geotechnical borings/trenching or meteorological stations. These activities may damage or materially alter cultural resources, particularly archaeological sites. Vibrations caused by the borings might cause structural damage to historic buildings, and could also impact rock art sites.

Increased access to previously inaccessible areas by way of new access roads could result in undisturbed lands located adjacent to access roads becoming disturbed by unauthorized off-road use adjacent to the roads, and provide opportunities to loot or vandalize cultural resource areas. Fugitive dust from vehicle traffic can degrade the research value and condition of rock art by adversely affecting the patina/petroglyph contrast or degrading the pictograph pigments. Temporary impacts to the visual integrity of cultural resources can also result from site characterization activities if the visual setting is an important characteristic of the resource's significance such as cultural landscapes, TCPs, and trails.

IV.8.2.1.2 Impacts of Construction and Decommissioning

Physical impacts to cultural resources would result from the large amount of ground-disturbing activities necessary for the construction and decommissioning of renewable energy projects. Additionally, vegetation clearing and dust generated during the construction phase would result in temporary impacts to the visual setting of cultural resources. The permanent presence of renewable energy structures, ancillary facilities, and associated transmission lines would result in long-term visual impacts to cultural resources whose significance is tied to its visual setting.

Construction

The construction of renewable energy facilities affects cultural resources primarily during two broad categories of activity: ground disturbance and structure installation.

Ground Disturbance. Examples of ground-disturbing activities include (1) the construction of staging areas and access roads, (2) grading and vegetation clearing, (3) foundation excavations, and (4) building fences and drainage ditches. These activities could result in the alteration or degradation of cultural resources described below.

- Temporary impacts to the visual setting of buildings and structures, trails, cultural landscapes, TCPs, and sacred sites could result from the use of large-scale machinery, equipment, and vehicles. Increased dust could also be generated.
- Construction-generated noise could also impact the setting of cultural resources, particularly TCPs or sacred sites.
- Increases in human access and subsequent disturbance of cultural resources could result from the establishment of corridors or facilities in otherwise intact and inaccessible areas. Increased human access could expose these resources to a variety of stressors including trampling artifacts, creating tracks and dust from recreational vehicles, illegally collecting artifacts, and inadvertently damaging unrecognized resources.
- Vibration from construction vehicles and activities could damage historic buildings and rock art sites.
- Fugitive dust from construction vehicles and heavy equipment could degrade research value and condition of rock art by adversely affecting the patina/petroglyph contrast or damaging the pictograph pigments. Grading and vegetation clearing could cause long-term changes to the visual setting of cultural landscapes, trails, TCPs, and sacred sites.
- Erosion of soils, project runoff, and oil or other contaminant spills could cause damage to cultural resources located both within the project footprint and in areas either downslope or downstream.

Structure Installation. Examples of activities related to structure installation include erecting transmission line towers, wind turbines, solar towers and troughs, and steam turbines. Additional activities related to structure installation include pulling and stringing transmission lines and building permanent security fencing. Impacts to cultural resources from structure installation would be similar to those described for ground disturbance. Each activity results in surface and subsurface disturbance, with potential to damage cultural resources.

Additionally, long-term impacts can result from the permanent presence of renewable energy structures. These changes to the visual setting can affect the value of buildings and structures, trails, cultural landscapes, TCPs, sacred sites, and other cultural resources for which the visual setting is an important component of a site's significance.

Decommissioning

Similar to construction activities, decommissioning of a renewable energy project can be divided into two broad categories: removal of structures and restoration and revegetation. Site decommissioning, reclamation, and abandonment would create the least ground disturbance by confining those activities to the original area affected during construction. If additional work areas are needed beyond those disturbed during construction, there would potentially be new impacts similar to those occurring during project construction ground disturbances. At times, these impacts may be transitory as the removal of structures may be considered a positive effect on the setting for cultural resources.

Removal of Structures. The removal of renewable energy project structures would involve removal of all aboveground facilities (e.g., wind turbines, solar power towers, heliostats, and solar photovoltaic arrays) as well as graveled or paved work pads and roads. Cultural resources could be affected by the removal of subsurface facilities (e.g., grounding rods and grids, tower and building foundations, natural gas pipelines). These components may be removed to a minimum depth of 3 feet from the surface and otherwise abandoned in place.

Laydown areas would be established for decommissioning. Impacts to cultural resources from the removal of structures would be similar to those described earlier, as long as laydown areas and other decommissioning activities are not located within the original project footprint.

If access roads are left in place, impacts to cultural resources from increased human access would be similar to those described for the creation of new access roads. The damage to these resources may increase during this phase because the area would no longer be periodically monitored by either an operator or a lead agency through mitigation monitoring.

Visual impacts to cultural resources may be mostly removed after decommissioning, assuming the site can be restored to its preconstruction state. However, effective restoration is difficult in the desert environment and a scarred environment could be permanently visible to cultural resources. However, it is important to note that despite the usually temporary nature of visual impacts to cultural resources these impacts can be significant and should require mitigation if the visual impact is permanent.

Restoration and Revegetation. Examples of activities related to restoration and revegetation include remediation of spills and contaminated soils, reseeding of the project site, and removal of all gravel packs and paving. Impacts to cultural resources from the restoration and revegetation of a project site are unlikely because resources in the areas slated for restoration and revegetation would have been accounted for during the earlier phases of project development. However, any cultural resources situated in close proximity to restoration and revegetation areas could be adversely affected in an unanticipated manner.

Restoration could create long-term visual impacts to buildings and structures, trails, cultural landscapes, TCPs, and sacred sites if the contours of restored areas are not identical to pre-project conditions. Additionally, invasive species may re-colonize reclaimed areas, causing contrasts in color and texture, and potentially impact culturally sensitive plants that are part of a cultural landscape or traditional cultural property.

IV.8.2.1.3 Impacts of Operations and Maintenance

Fewer physical impacts to cultural resources would occur from the operation and maintenance of renewable energy projects, although the duration of visual, auditory, and olfactory effects can be long lasting. Visual degradation of settings associated with cultural resources could result from renewable energy development and its associated land disturbances and ancillary facilities.

Maintenance activities that could potentially impact cultural resources include (1) fire and fuel management, (2) cleaning and maintenance of roads and facilities (including buried facilities such as pipelines and drainages), and (3) night lighting. Vegetation management undertaken to reduce fire risk within transmission rights-of-way (ROWs) could impact cultural resources, particularly if the area had not been properly surveyed for cultural resources prior to construction. Cleaning and maintaining roads and facilities, particularly with the use of water, could impact cultural resources if such resources were to be uncovered by erosion from water for cleaning, or if ground-disturbing activities were to somehow impact unknown buried resources. For visual cultural resources, night lighting could impact these resources by disrupting the overall view of a landscape, in addition to night-sky viewing.

IV.8.2.2 Impacts of the Reserve Design

No renewable energy development would be permitted in Reserve Design Lands. Impacts to cultural resources resulting from Reserve Design Lands could be beneficial if resources are preserved, and to some extent could offset the adverse effects of renewable energy development. However, allowable activities that require ground-disturbing activities, like digging holes for plants, could adversely impact cultural resources.

IV.8.2.3 Impacts of BLM Land Use Plan Decisions

IV.8.2.3.1 Impacts of Renewable Energy Development and Transmission on BLM Lands

The typical impacts from the various renewable energy and transmission technologies on BLM lands would be the same as those described in Section IV.8.2.1. However, the specific locations in which energy and transmission development would be allowed would be driven by LUPA decisions, which may encourage or restrict development in some areas with high cultural resources sensitivity.

IV.8.2.3.2 Impacts of BLM Land Designations and Management Actions

Because the BLM LUPA land designations would be managed to protect ecological, historic, cultural, scenic, scientific, and recreation resources and values, they would also confer general protection for cultural resources. While other land uses are allowed within these areas, other uses must be compatible with the resources and values that the land designation is intended to protect.

Impacts to cultural resources resulting from Areas of Critical Environmental Concern (ACECs), National Landscape Conservation System (NLCS) lands (also referred to interchangeably as National Conservation Lands), and wildlife allocations would likely be beneficial since disturbance caps in these areas conserve and protect resource values. These disturbance caps and other management actions would minimize soil disturbance, erosion, and other adverse impacts, providing protection for cultural resources. However, some habitat conservation and other biological actions could create ground disturbance and damage cultural resources.

Details on allowable uses and management actions within NLCS lands are presented in the proposed LUPA description in Volume II. Details on the goals, objectives, allowable uses, and management actions for each ACEC and Special Recreation Management Area (SRMA) are presented in the BLM LUPA worksheets in Appendix L. To the extent SRMAs are designated, increased accessibility to areas with cultural resources could lead to looting or vandalism.

For cultural resources, a major difference between DRECP alternatives is in the Plan-wide Conservation and Management Actions (CMAs) proposed for each alternative.

IV.8.2.4 Impacts of Natural Community Conservation Plan and General Conservation Plan

The NCCP would be administered by the California Department of Fish and Wildlife (CDFW), and would be applicable to the entire Plan Area. The GCP would be administered

by the U.S. Fish and Wildlife Service (USFWS) and would be applicable to nonfederal lands, a subset of the entire Plan Area; however, renewable energy impacts under the GCP would be limited to nonfederal lands within the DFAs.

IV.8.2.4.1 Natural Community Conservation Plan

The impacts of renewable energy development permitted under the NCCP would be the same as those defined for the Plan-wide impacts, including the typical impacts described in Section IV.8.2 and for each alternative described below.

IV.8.2.4.2 General Conservation Plan

The types of impacts resulting from renewable energy development permitted under the GCP would be the same as those defined for the Plan-wide impacts, including the typical impacts described in Section IV.8.2. However, the locations where these impacts would occur would vary by alternative. Any differences in these impacts that result from the locational differences are described for each alternative.

IV.8.3 Impact Analysis by Alternative

The following sections present the cultural resources impact analysis for the No Action Alternative, the Preferred Alternative, and Alternatives 1 through 4. Each alternative is compared to the Preferred Alternative. The percent difference between the number of estimated archaeological and built-environment resources in different land designations is used in some analyses. For example, to compare how many archaeological and built-environment resources are estimated within the DFAs for the Plan-wide area between the Preferred Alternative and Alternative 1, the difference between total estimated archaeological and built-environment resources would be divided by the lower total and multiplied by 100 to get the percent difference. The number of cultural resources estimated for the entire Plan Area does not change per alternative but rather the boundaries and acreages change. Therefore, the higher the acreage, the more cultural resources are estimated to be impacted or conserved.

IV.8.3.1 No Action Alternative

The No Action Alternative assumes the state's renewable energy goals would be achieved absent the DRECP and EIR/EIS, and that renewable energy, transmission development, and mitigation for projects in the Plan Area would proceed on a project-by-project basis in a pattern consistent with past and ongoing renewable energy and transmission projects.

Any areas currently excluded from development by statute, regulation, or proclamation would retain those exclusions. On BLM land, any areas administratively excluded would

continue to be assessed based on management guidance within BLM local field office land use plans. Without the DRECP, renewable energy development would likely continue to be patchy and fragmented, ultimately resulting in the increased likelihood of cumulative impacts to significant cultural resources within the Plan Area.

Under the No Action Alternative, the USFWS would not propose to develop a General Conservation Plan (GCP) to streamline future permitting of incidental take of Endangered Species Act (ESA)-listed species on nonfederal lands resulting from renewable energy projects and associated transmission in the California deserts. In the absence of a federal nexus, project proponents desiring incidental take authorization from USFWS would need to develop General Conservation Plans (GCPs) for their individual permit applications. Similarly, under the No Action Alternative, the USFWS would not propose to issue incidental take permits to California Energy Commission (CEC) or California State Lands Commission (CSLC) under the GCP.

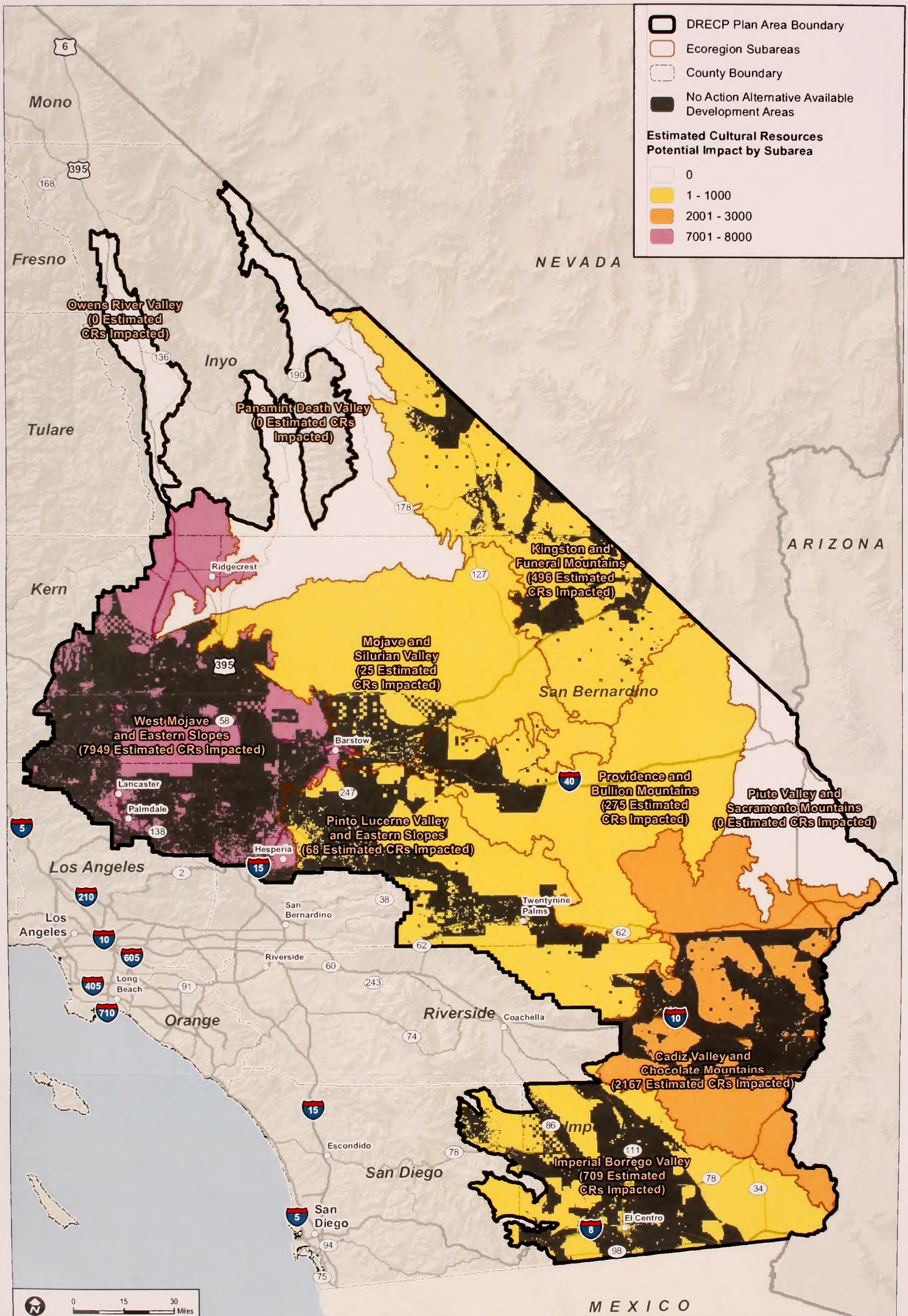
IV.8.3.1.1 Impacts within the Entire Plan Area in No Action Alternative

IV.8.3.1.1.1 Impacts and Mitigation for Renewable Energy and Transmission Development in No Action Alternative

Impact Assessment

Approximately 9,781,700 acres of Available Development Areas (ADAs) are available in the Plan Area that could be developed under the No Action Alternative. This includes both federal and nonfederal lands and represents nearly half the entire Plan Area. Impacts to cultural resources on this scale would be substantial and dispersed across the Plan Area.

As described in Section IV.8.1.1, an estimated 11,689 archaeological and built-environment resources could be affected within the developable area of the No Action Alternative (Appendix R2.8, Table R2.8-1). The density of these resources by ecoregion is shown in Figure IV.8-1. TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner. While current to December 2012, it is important to note that this data has varying degrees of completeness, with information on some resources more detailed than others. In addition, NRHP/CRHR eligibility was not available as a resource attribute, which is an important factor as knowing the significance under applicable regulatory standards is critical to determining the severity of impacts to these resources. The identification, evaluation, and treatment of cultural resources would have to be conducted on a project-specific level to ensure that as-yet-unidentified cultural resources are taken into account. The impacts to cultural resources under the No Action Alternative follow.



Sources: ESRI (2014); CEC (2013); BLM (2013); CDFW (2013); USFWS (2013); RECON 2014

FIGURE IV.8-1

Estimated Number of Cultural Resources within ADA by Ecoregion Subarea – No Action Alternative

Draft DRECP and EIR/EIS

August 2014

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Impact CR-1: Plan components could affect historic period built-environment resources.

Section III.8.2.1 defines historic period built-environment resources. These resources can be contributors to landscapes and TCPs.

Site Characterization. Damage or alteration of historic period built-environment resources could result from ground-disturbing activities and site characterization activities such as geotechnical borings, installation of meteorological stations, and establishment of temporary access roads for borings or meteorological stations. Temporary impacts to the visual setting, could result from construction vehicles and increased dust generated during ground disturbances. Long-term impacts to the visual setting of historic period built-environment resources could occur from the permanent presence of project structures.

Construction and Decommissioning. Damage or alteration of historic period built-environment resources could result from ground-disturbing activities such as the construction of staging areas and access roads, grading and vegetation clearing, and foundation excavations. Site decommissioning would have the fewest impacts if ground disturbance was confined to the original project area footprint. Temporary impacts to the visual setting, could result from construction vehicles and increased dust generated during ground disturbances. Long-term impacts to the visual setting of historic period built-environment resources could occur from the permanent presence of project structures. Visual impacts to historic period built-environment resources would mostly be removed after decommissioning, as long as the site was properly restored to its preconstruction state.

Operations and Maintenance. The fewest physical impacts to historic period built-environment resources could occur from operations and maintenance since ground disturbance would be limited to vegetation clearance and to cleaning, maintaining, and repairing roads and facilities. Damage or alteration of historic period built-environment resources could occur if these ground-disturbing activities take place in areas that have not been properly surveyed before construction. Vibration generated from operations and maintenance could result in long-term impacts to the structural integrity of built-environment resources. Long-term visual and sensory impacts to historic period built environment resources could therefore result from renewable energy projects and their associated land disturbances and ancillary facilities.

Impact CR-2: Plan components could affect prehistoric and historic period archaeological resources.

(See Section III.8.2.1 for definition of prehistoric and historic period archaeological resources. Note that these resources can be contributors to landscapes and TCPs.)

Site Characterization. Damage or alteration of prehistoric and historic period archaeological resources could result from ground-disturbing activities such as geotechnical borings, installation of meteorological stations, and establishment of temporary access roads for borings or meteorological stations. Temporary and occasionally long-term impacts to the visual setting could result from construction vehicles and increased dust generated during ground disturbances.

Construction and Decommissioning. Damage or alteration of prehistoric and historic period archaeological resources could result from ground-disturbing activities in a project-specific area such as the construction of staging areas and access roads, grading and vegetation clearing, and foundation excavations. Site decommissioning would have the fewest impacts to prehistoric and historic period archaeological resources if ground disturbance was confined to the original project area. Temporary impacts to the visual setting of prehistoric and historic period archaeological resources, such as trails and rock art sites, could result from construction vehicles and increased dust generated during ground disturbance. Long-term impacts to the visual setting of prehistoric and historic period archaeological resources could occur from the permanent presence of renewable energy structures. Visual impacts to prehistoric and historic period archaeological resources would mostly be removed after decommissioning, as long as the site was properly restored to its preconstruction state.

Operations and Maintenance. Few physical impacts to known and managed prehistoric and historic period archaeological resources could occur from the operation and maintenance of renewable energy projects since ground-disturbance activities would be limited to vegetation clearance and the cleaning and maintaining of roads and facilities. Damage or alteration of prehistoric and historic period archaeological resources could occur if these ground-disturbing activities took place in areas that had not been properly surveyed for cultural resources prior to construction. However, it is important to note that even if areas are surveyed prior to construction, there is still the potential for inadvertent damage to known sites or for activities to uncover buried resources during later stages of ground disturbance; there are often no surface indications of a site. Soil erosion from water used to clean roads and facilities could expose buried prehistoric and historic period archaeological resources. Long-term visual and sensory impacts to prehistoric and historic period archaeological resources, such as trails, could therefore occur from renewable energy development and its associated land disturbances and ancillary facilities.

Impact CR-3: Plan components could disturb human remains or cultural items, including funerary objects, sacred objects, and objects of cultural patrimony.

Section III.8.2.1 defines human remains and cultural items. These can contribute to landscapes and TCPs.

Site Characterization. The disturbance of human remains or cultural items, including associated funerary objects, sacred objects, and objects of cultural patrimony is unlikely to occur during site characterization activities because site surveys should identify these cultural items before site characterization begins. Moreover, ground-disturbing activities during site characterization are limited in their depth and total disturbance, and therefore have low potential for disturbing human remains and other cultural items.

Construction and Decommissioning. Disturbance of human remains or cultural items, including associated funerary objects, sacred objects, and objects of cultural patrimony could result from construction-related ground disturbance. Ground-disturbing activities such as grading, vegetation clearing, and foundation excavations, could lead to the unintentional discovery of burials and cultural items, including associated funerary objects, sacred objects, and objects of cultural patrimony, which are typically unmarked. Decommissioning is unlikely to cause disturbance of these cultural items, however, if ground disturbance is confined to the original project area footprint.

Operations and Maintenance. Disturbance of human remains or cultural items, including associated funerary objects, sacred objects, and objects of cultural patrimony is unlikely to occur from operations and maintenance since ground-disturbance activities would be limited to clearing vegetation and cleaning and maintaining roads and facilities. Disturbance of these cultural items could occur in areas that are not properly surveyed for cultural resources. However, it is important to note that even if areas are surveyed before construction, there is still the potential to uncover these types of cultural items during later stages of ground disturbance since there are often no surface indications of them.

Impact CR-4: Plan Components Could Affect Cultural Landscapes.

Section III.8.2.1 defines cultural landscapes. TCPs, archaeological resources and built environment resources may contribute to cultural landscapes and cultural landscapes may be considered TCPs.

Site Characterization. Damage or alteration of cultural landscapes could result from ground-disturbing activities and site characterization activities such as geotechnical borings, installation of meteorological stations, and establishment of temporary access roads for borings or meteorological stations. Access roads and meteorological stations could also result in impacts to the visual setting of cultural landscapes.

Construction and Decommissioning. Damage or alteration of cultural landscapes could result from ground-disturbing activities such as the construction of staging areas and access roads, grading and vegetation clearing, and foundation excavations. Site decommissioning would have the fewest impacts if ground disturbance was confined to the original project area footprint. Construction vehicles and increased dust generated during ground disturbances and other construction activities could temporarily impact the visual setting of the cultural landscapes. Noise generated by construction could temporarily impact the auditory environment of cultural landscapes. Long-term impacts to the visual setting of cultural landscapes could occur from the presence of project structures during the length of the project. Visual impacts to cultural landscapes would mostly be removed after decommissioning, as long as the site was properly restored to its preconstruction state.

Operations and Maintenance. The fewest physical impacts to cultural landscapes could occur from operations and maintenance since structures would already be in place and ground disturbance would be limited to vegetation clearance and to cleaning, maintaining, and repairing roads and facilities. Damage or alteration of cultural landscapes could occur if these ground-disturbing activities take place in areas that have not been properly surveyed for cultural resources before construction. Soil erosion from water used to clean roads and facilities and vegetation clearance could impact the visual setting of cultural landscapes. Long-term visual and sensory impacts to cultural landscapes could therefore result from renewable energy projects and their associated land disturbances and ancillary facilities.

Laws and Regulations

Existing laws and regulations related to the identification, protection, and preservation of cultural resources are described in Volume III, Section III.8.1, Regulatory Setting. These laws may aid in reducing impacts of renewable energy development projects in the absence of the DRECP, but are not mitigation measures. Note that because this EIR/EIS addresses amendments to BLM's land use plans, these plans are addressed separately and are not included in this section.

Design Features from the Solar Programmatic Environmental Impact Statement

In addition to the regulations described earlier, several design features identified in the BLM Solar PEIS are in effect now within the Plan Area on BLM managed land for solar projects. These design features are presented here as defined in that document (Sections 5.15.1 and 5.15.2 for cultural resources and Sections 5.16.1 and 5.16.2 for Native American concerns). The design features are also presented in full in Appendix W to this EIR/EIS.

The design features would help avoid or minimize impacts to cultural resources prior to the development of project-specific mitigation measures. They are presented by project phase or

activity: (1) general design features; (2) site characterization, siting and design, and construction; (3) operations and maintenance; and (4) reclamation and decommissioning.

General Design Features

CR1-1 Project developers shall coordinate with BLM early in the planning process to identify and minimize cultural resource impacts; BLM will consult with other federal, tribal, state, and local agencies as appropriate.

a) Determining cultural resource impacts shall include, but is not limited to, the following:

- Initiating Section 106 consultations between BLM, SHPOs, Indian tribes, and other consulting parties early in the project planning process. Thresholds for the involvement of and review by the Advisory Council on Historic Preservation (ACHP) include nonroutine interstate and/or interagency projects or programs; undertakings adversely affecting National Historic Landmarks; undertakings that BLM determines to be highly controversial; and undertakings that will have an adverse effect and with respect to which disputes cannot be resolved through formal agreement between BLM and the SHPO, such as a Memorandum of Agreement (MOA).
- Conducting site-specific Section 106 review for individual projects. BLM will require the completion of inventory, evaluation, determinations of effect, and treatment in accordance with the Solar PA. This Solar PA is titled "Programmatic Agreement among the United States Department of the Interior, Bureau of Land Management, the Arizona State Historic Preservation Officer, the California State Historic Preservation Officer, the Colorado State Historic Preservation Officer, the New Mexico State Historic Preservation Officer, the Nevada State Historic Preservation Officer, the Utah State Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding Solar Energy Development on Lands Administered by the Bureau of Land Management."

b) General methods to minimize cultural resource impacts may include, but are not limited to, the following:

- If historic properties that could be adversely affected are present in the project location, developing an MOA tiered to the Solar PA to

address the mitigation steps that will be followed to avoid, minimize, or mitigate adverse effects on historic properties.

- Where BLM determines that a specific proposed solar energy project has the potential to adversely affect historic properties but those effects cannot be determined prior to its approval, BLM may elect to review a proposed solar energy project using an undertaking-specific PA executed pursuant to 36 Code of Federal Regulations (CFR) 800.6, instead of following the procedures outlined in the overarching Solar PA.
- Using training/educational programs for solar company workers to reduce occurrences of disturbances, vandalism, and harm to nearby historic properties. The specifics of these sensitivity training programs shall be established in project-specific consultations between the applicant, BLM, the SHPO, and affected Indian tribes, and will be articulated in a WEAP [worker environmental awareness program]. Such education and awareness plans will incorporate adaptive management protocols for addressing changes over the life of the project, should they occur.
- Securing a performance and reclamation bond for all solar energy generation facilities to ensure compliance with the terms and conditions of the ROW authorization. When establishing bond amounts and conditions, the BLM authorized officer shall require coverage of all expenses tied to cultural resources identification, protection, and mitigation. These may include, but are not limited to, costs for ethnographic studies, inventory, testing, geomorphological studies, data recovery, curation, monitoring, treatment of damaged sites, and generation and submission of reports (see ROW authorization policies, Section 2.2.1.1 of the Final Solar PEIS).

Site Characterization, Siting and Design, Construction

CR2-1 Solar facilities shall be characterized, sited, and designed, and constructed in coordination with BLM to minimize cultural resource impacts.

a) Methods to minimize impacts to cultural resources shall include but are not limited to, the following:

- BLM determining the APE for each proposed solar energy project, to include a review of existing information, and efforts to seek information from and views of tribes and other parties likely to

have knowledge of or concerns with historic properties in the APE. This information will be supplemented by discussions at pre-application meetings with the solar energy project applicant, the SHPO, and affected tribes regarding project designs, sacred sites, traditional cultural properties (TCPs), and proposed cultural resource inventory strategies.

- BLM consulting the SHPO, affected tribes (regarding the treatment of adverse effects for those property types on which the tribes indicate at pre-application or other meetings they wish to provide input), and any other consulting parties, if National Register of Historic Places (NRHP)-eligible properties are present at the site and would be adversely affected. BLM will seek agreement to avoid, minimize, or mitigate adverse effects on historic properties. BLM will execute an MOA with the SHPO to conclude the Section 106 process and will file a copy with the ACHP. Where BLM and the SHPO are unable to execute an MOA, BLM will invite the ACHP to participate in an undertaking-specific MOA. The MOA will specify the treatment for which BLM will be responsible, and which will be implemented by the solar applicant.
- Undertaking a Class III inventory of the APE. If BLM decides to require less than a Class III inventory for the entire APE, BLM will seek additional views of the SHPO, affected tribes, and other parties and determine the final inventory strategy that best represents a reasonable and good-faith effort to carry out appropriate identification efforts.
- Conducting inventories according to the standards set forth in the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation (48 Federal Register [FR] 44716); BLM Handbook H-8110 (Handbook for Identifying Cultural Resources); revised BLM Manual 8110; and applicable BLM or SHPO survey, site record, or reporting standards. All inventory data must be provided to BLM in digitized or paper format that meets BLM accuracy standards, including shape files for surveyed areas.
- Bringing any unexpected discovery of cultural resources during any phase of development (construction, operations and maintenance, or decommissioning) to the attention of the responsible BLM authorized officer immediately, as specified in

the PA. Work shall be halted in the vicinity of the find. The area of the find shall be protected to ensure that the resources are not removed, handled, altered, or damaged while they are being evaluated and to ensure that appropriate mitigative or protective measures can be developed and implemented.

b) Methods to minimize cultural resource impacts may include, but are not limited to, the following:

- Including in the MOAs measures for management of historic properties, in situations where historic properties require management or monitoring for avoidance and protection within or near a project's boundaries. Such measures will specify the preparation and implementation of steps to lessen the adverse effects of the undertaking upon those aspects of NRHP eligibility criteria that make the historic properties eligible for nomination to the NRHP.
- Requiring that surface disturbance be restricted or prohibited within the viewshed of such property types when their eligibility is tied to their visual setting to protect NRHP-eligible traditional cultural properties, sacred sites, or historic trails from visual intrusion and to maintain the integrity of their historic setting unless acceptable mitigation is proposed.
- Employing cultural field monitors (appropriate for the resource anticipated) to monitor ground-disturbing activities (for example in geomorphic settings, such as in shifting sands, where buried deposits may be present) in cases where there is a probability of encountering cultural resources during construction that could not be detected during prior Class III inventories. Monitoring plans shall be specified within MOAs.
- Encouraging the use of previously disturbed lands and lands determined by archeological inventories to be devoid of historic properties.

Reclamation and Decommissioning

CR3-1 Prior to reclamation activities, BLM may require further planning for treatment of historic properties or planning for mitigation addressing reclamation activities.

CR3-2 BLM shall be notified prior to the demolition or substantial alteration of any building or structure. If judged necessary by BLM, the developer will be required to evaluate the structures for their significance employing professionally qualified architects or historic architects. If structures slated for demolition are found to be eligible for listing on the NRHP, they will be recorded to Historic American Building Survey and/or Historic American Engineering Record standards before alteration or removal.

CR3-3 Project developers shall confine soil-disturbing reclamation and decommissioning activities to previously disturbed areas. Known historic properties will be avoided during these activities.

Mitigation

Adverse effects to historic properties (NRHP eligible cultural resources) and historical resources (CRHP eligible cultural resources) would be resolved on a project-specific level. As part of this process, resource identification efforts including pedestrian surveys, formal government-to-government tribal consultation for both state and federal lead agencies, and engagement with Native American communities would be necessary. Under the No Action Alternative these project-specific efforts would occur as they have in the past, but without the guidance provided in the DRECP. Examples of ways to resolve adverse effects applicable to any project implemented in the absence of a Plan approval include the following:

- Develop a treatment plan for the unanticipated discovery of cultural resources during all phases of project development, including procedures for work to be halted in the vicinity of the find. The area of the find would then be protected to ensure that resources are not removed, handled, altered, or damaged while they are evaluated and until the adverse effects are resolved.
- Develop a treatment plan for the inadvertent discovery of human remains or suspected human remains, cultural items, including associated funerary objects, sacred objects, and objects of cultural patrimony in accordance with applicable laws and regulations (e.g., Native American Graves Protection and Repatriation Act [NAGPRA]) on federal lands. On nonfederal lands, those plans shall follow appropriate required regulations (California Public Resources Code [PRC] Section 5097.98; State Health and Safety Code Section 7050.5).
- Train project personnel on the importance of cultural resources and implement procedures for avoiding cultural resources and reporting any culturally sensitive resources.
- Employ cultural resource and tribal monitors during ground-disturbing activities when field conditions merit.

- Follow the best management practices (BMPs) outlined in Best Management Practices for Reducing Visual Impacts of Renewable Energy Facilities on BLM-Administered Lands (USDOI 2013). Some of which include:
    - Use of surface treatments of introduced materials to reduce the visual impact of such materials.
    - Use of specific lighting design and operations to reduce impacts to night-sky viewing.
- Implement construction standards that would prevent toxic chemicals from entering waterways, minimize the chance of hazardous spills, and implement measures to prevent excessive and man-made soil deposition and erosion.
- Create data recovery plans that would resolve adverse effects to those NRHP/CRHR-eligible cultural resources that would be impacted by the project by requiring some level of extracting the scientific value and analysis of the deposited cultural material prior to development.
- Implement construction standards to reduce the amount of fugitive dust generated during project construction.
- Conduct analyses to determine the impact of vibration from ground-disturbance activities (such as geotechnical boring) on the structural integrity of built-environment resources and prehistoric resources such as rock art.
- Record information on building or structures in a Historic American Building Survey/Historic American Engineering Record (HABS/HAER) at a level compatible with National Park Service (NPS) standards. Adequate recordation of a built-environment resource shall include:
    - Site-specific history and appropriate contextual information regarding the particular resource, in addition to archival research and comparative studies.
    - Accurate mapping of the noted resources, scaled to indicated size and proportion of the structures.
    - Architectural descriptions of the structures.
    - Photographic documentation of designated resources.
    - Recordation using measured architectural drawings.
- Require the preservation or reuse of an eligible structure to follow the DOI's *Standards and Guidelines for Archeology and Historic Preservation*. If the building is considered a historical resource under CEQA, the local building inspector must grant code alternatives under the State Historic Building Code.

- In a case where HABS/HAER documentation does not provide adequate mitigation to reduce impacts to a less than significant level, projects would normally be required to take additional steps to capture the history and memory of the resource and share this information with the public using various methods such as Web media, static displays, interpretive signs, use of on-site volunteer docents, or informational brochures.
- Develop measures to address impacts to cultural resources during operation and maintenance activities.
- Establish conservation easements where individual resources could be preserved.
- Require that staff who write and implement the required plans meet the U.S. Secretary of Interior's Professional Qualifications Standards, as published in 36 CFR 61 for the relevant cultural resources specialty.
- Require technical reports to meet the requirements outlined in California Office of Historic Preservation's Archaeological Resource Management Reports: Recommended Contents and Format.
- Address impacts to cultural resources at a landscape scale following the guidance in *A Strategy for Improving Mitigation Policies and Practices of the Department of the Interior (*Interior 2014*)*, including but not limited to:
    - Compensatory mitigation.
    - Coordination with other agencies.
    - Measures to monitor and evaluate the progress of long-term mitigation.
    - Geospatial information systems developed and maintained for use in identifying existing and potential conservation strategies and development opportunities.

IV.8.3.1.1.2 Impacts from Reserve Design in the No Action Alternative

The No Action Alternative has no reserve design, but even without approval of an alternative, there would be continued protection of existing Legislatively and Legally Protected Areas (LLPAs) such as wilderness areas. In addition, under the No Action Alternative, renewable energy projects would continue to be evaluated and approved with project-specific mitigation requirements.

Currently, approximately 42% of the Plan Area is within existing BLM protected lands or BLM land designations (Appendix R2.8, Table R2.8-2). Renewable energy development in these land designations, and any resultant impacts to cultural resources, would be reviewed on a project-by-project basis. If individual projects approved under the No Action

Alternative resulted in the establishment of new conservation lands, cultural resources in those areas likely would be protected from disturbance.

IV.8.3.1.2 Impacts to BLM Lands of Existing BLM Land Use Plans in No Action Alternative

Under the No Action Alternative, the existing land management plans within the Plan Area (California Desert Conservation Area [CDCA] Plan, as amended; Caliente Resource Management Plan [RMP], and Bishop RMP) would continue to allow for renewable energy and transmission development within certain land designations, including Solar Energy Zones (SEZs) and Solar Variance Lands. Individual projects would continue to require individual land use plan amendments prior to their approval if they are sited outside of SEZ and Solar Variance Lands.

Table R2.8-3 presents the estimated number of archaeological and built-environment resources within the No Action Alternative's available development areas on BLM lands. The largest number of (1,961) archaeological and built-environment resources could be affected by solar energy projects. TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner.

Table R2.8-4 presents the estimated number of archaeological and built-environment resources within existing ACECs and SRMAs. The model shows 52,426 resources within existing SRMAs and 87,881 resources within existing ACECs. Existing ACECs and wildlife allocations would continue to protect all types of cultural resources because of their disturbance limitations.

IV.8.3.1.3 Impacts of Natural Community Conservation Plan in No Action Alternative

The NCCP would apply to all lands within the Plan Area. In the absence of Plan implementation, the NCCP would not be approved and no incidental take permits would be issued under the NCCP. Projects would continue to be considered by the appropriate lead agency on an individual basis. The impacts that would occur in the absence of the NCCP would be the same as those described in Section IV.8.3.1.1.1 (Plan-wide analysis).

IV.8.3.1.4 Impacts of General Conservation Plan in No Action Alternative

As described in Appendix M, the GCP would apply to certain nonfederal lands in the Plan Area. In the absence of Plan implementation, the GCP would not be approved and no incidental take permits would be issued under the GCP. Projects would continue to be considered by the USFWS on an individual basis. The impacts that would occur in the absence of

the GCP would be the same as those described in Section IV.8.3.1.1.1 (Plan-wide analysis), but would be specific to nonfederal lands within the Plan Area.

IV.8.3.1.5 Impacts Outside the Plan Area in No Action Alternative

Outside the Plan Area, additional transmission lines would be needed to deliver the additional renewable energy to load centers (areas of high demand). It is assumed that new transmission lines outside the Plan Area would use existing transmission corridors between the Plan Area and existing substations in the more populated coastal areas of the state. The Outside the Plan Areas through which new transmission lines might be constructed are San Diego, Los Angeles, North Palm Springs–Riverside, and Central Valley. These areas and their cultural resources are described in Volume III, Section III.8.7.

IV.8.3.1.5.1 Impacts of Transmission Outside the Plan Area

The application of mitigation measures and CEC cultural resources Conditions of Certification developed in consultation under Section 106 of the NHPA and the CEC siting process would avoid, reduce, or mitigate the potential for adverse impacts of transmission line development on significant cultural resources. Section 106 and CEC siting process consultations between BLM, CEC, SHPOs, appropriate tribes, and other consulting parties would be required. Ongoing tribal consultation, in accordance with NHPA/CEQA and other relevant state legislation, would help determine areas of sensitivity, appropriate survey and mitigation needs, and other issues of concern such as access rights or disruption of cultural practices.

Impact CR-1: Plan components could affect historic period built-environment resources.

Damage or alteration of historic period built-environment resources could result from all phases of transmission line development outside the Plan Area. Ground disturbance and site characterization activities would cause the most impacts to buried historical archaeological sites. Geotechnical boring and drilling vibrations could damage the structural integrity of built-environment resources. Construction vehicles and the generation of fugitive dust would temporarily impact the visual integrity of historic period built-environment resources. Long-term impacts would result from the presence of transmission infrastructure and other linear facilities. Increased pedestrian and vehicular access to historical archaeological sites could lead to artifact trampling and looting.

Impact CR-2: Plan components could affect prehistoric and historic period archaeological resources.

Damage or alteration of prehistoric and historic period archaeological resources could result from all phases of transmission line development outside the Plan Area. Ground dis-

turbance and site characterization activities would cause the most impacts to buried prehistoric archaeological sites. Geotechnical boring and drilling vibrations could damage rock art sites. Access roads constructed on a bajada (slope) or pediment landscape perpendicular to braided drainage networks could by design or natural causes result in the formation of deep-cut drainages that could expose and carry downstream cultural resources and modify the landscape and the distribution of vegetation. Construction vehicles and the generation of fugitive dust would temporarily impact the visual integrity of prehistoric and historic period archaeological resources such as trails, hunting blinds, or rock art sites. Long-term impacts would result from the presence of transmission infrastructure and other linear facilities. Increased pedestrian and vehicular access to prehistoric archaeological sites could lead to artifact trampling and looting, and ongoing use of roads for maintenance and by the public could generate fugitive dust that over time would adversely affect petroglyphs and pictographs.

Impact CR-3: Plan components could disturb human remains or cultural items, including funerary objects, sacred objects, and objects of cultural patrimony.

Disturbance of human remains or cultural items, including funerary objects, sacred objects, and objects of cultural patrimony could result from construction-related ground-disturbance activities during transmission line development outside the Plan Area. Ground-disturbance activities such as grading, vegetation clearing, and foundation excavations could lead to the unintentional discovery of burials and other cultural items, which are typically unmarked.

Impact CR-4: Plan components could affect cultural landscapes.

Site Characterization. Damage or alteration of cultural landscapes could result from ground-disturbing activities and site characterization activities such as geotechnical borings, installation of meteorological stations, and establishment of temporary access roads for borings or meteorological stations.

Construction and Decommissioning. Damage or alteration of cultural landscapes could result from ground-disturbing activities such as the construction of staging areas and access roads, grading and vegetation clearing, and foundation excavations. Site decommissioning would have the fewest impacts if ground disturbance was confined to the original project area footprint. Construction vehicles and increased dust generated during ground disturbances could temporarily impact the visual setting of the cultural landscapes. Long-term impacts to the visual setting of cultural landscapes could occur from the permanent presence of project structures. Visual impacts to cultural landscapes would mostly be removed after decommissioning, as long as the site was properly restored to its preconstruction state.

Operations and Maintenance. The fewest physical impacts to cultural landscapes could occur from operations and maintenance since ground disturbance would be limited to vegetation clearance and to cleaning, maintaining, and repairing roads and facilities. Damage or alteration of cultural landscapes could occur if these ground-disturbing activities take place in areas that have not been properly surveyed for cultural resources before construction. Soil erosion from water used to clean roads and facilities could impact the visual setting of cultural landscapes. Long-term visual and sensory impacts to cultural landscapes could therefore result from renewable energy projects and their associated land disturbances and ancillary facilities.

IV.8.3.1.5.2 Impacts of Existing BLM Land Use Plans Outside the Plan Area

Under the No Action Alternative, the existing BLM land use plans would continue to be implemented on CDCA lands, both within and outside the Plan Area. Under the No Action Alternative, renewable energy projects would still be developed through BLM's existing policies. Impacts to cultural resources outside the Plan Area would be of the types described in Section IV.8.2.1, with similar mitigation measures being included on a case-by-case basis. The existing land designations, including existing protected areas, ACECs, and National Scenic and Historic Trails, would continue to be managed by BLM to protect their associated values and resources.

Under the No Action Alternative, cultural resources found within BLM LUPA lands outside the Plan Area are shown in Table R2.8-5. The model shows that 13,206 archaeological and built-environment resources are estimated to be within SRMAs and 2,760 archaeological and built-environment resources within ACECs in BLM LUPA lands outside the Plan Area, but within the CDCA. TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner. Impacts to cultural resources on BLM-administered lands under existing land use plans outside the Plan Area would be the same as discussed in Section IV.8.3.1.1.1.

IV.8.3.1.6 CEQA Significance Determination: No Action Alternative

An estimated 11,689 archaeological and built-environment resources are located within the ADAs of the No Action Alternative. TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner. It is important to note, however, that large areas of the Southern California desert have never been surveyed, so these data are incomplete. The identification, evaluation, and treatment of cultural resources would need to be conducted on a project-specific level in

supplemental project-specific CEQA documents to ensure that as-yet-unidentified cultural resources are taken into account.

Impact CR-1: Plan components could affect historic period built-environment resources.

Damage or alteration of historic period built-environment resources could result from all phases of renewable energy development under the No Action Alternative. Ground disturbance and site characterization activities would cause the most impacts to buried historical archaeological sites. Geotechnical boring and drilling vibrations could damage the structural integrity of built-environment resources. Construction vehicles and personnel and the generation of fugitive dust would temporarily impact the visual integrity of historic period built-environment resources. Long-term impacts would result from the presence of transmission infrastructure and other linear facilities. Increased pedestrian and vehicular access to historical archaeological sites could lead to artifact trampling and looting. No new conservation lands would be defined in the No Action Alternative.

Implementation of typical mitigation measures for historic period built-environment resources presented in Section IV.8.3.1.1.1 would normally reduce impacts to these resources to less than significant levels.

Impact CR-2: Plan components could affect prehistoric and historic period archaeological resources.

Damage or alteration of prehistoric and historic period archaeological resources could result from all phases of renewable energy development under the No Action Alternative. Ground disturbance and site characterization activities would cause the most impacts to buried prehistoric and historic period archaeological sites. Geotechnical boring and drilling vibrations could damage rock art sites. Construction vehicles and personnel and the generation of fugitive dust would temporarily impact the visual integrity of prehistoric and historic period archaeological resources such as trails, hunting blinds, or rock art sites. Long-term impacts would result from the presence of transmission infrastructure and other linear facilities. Increased pedestrian and vehicular access to prehistoric archaeological sites could lead to artifact trampling and looting.

Typical mitigation measures for prehistoric and historic period archaeological resources are listed in Section IV.8.3.1.1.1. Depending on the resource, implementation of these measures could reduce impacts to a less than significant level. However, the majority of the impacts to prehistoric and historic period archaeological resources from renewable energy development would be significant and unavoidable. On a project-by-project basis, determinations could be different and impacts may be less than significant.

Impact CR-3: Plan components could disturb human remains or cultural items, including funerary objects, sacred objects, and objects of cultural patrimony.

Disturbance of human remains or cultural items, including funerary objects, sacred objects, and objects of cultural patrimony could result from construction-related ground-disturbance activities under the No Action Alternative. Ground-disturbance activities such as grading, vegetation clearing, and foundation excavations could lead to the unintentional discovery of burials and other cultural items, which are typically unmarked.

Typical mitigation measures for human remains and cultural items appear in Section IV.8.3.1.1.1. However, even with the implementation of these mitigation measures the impacts to human remains or cultural items would be significant and unavoidable.

Impact CR-4: Plan components could affect cultural landscapes.

Disturbance or alteration to cultural landscapes could result from all phases of renewable energy development under the No Action Alternative. Ground disturbance and site characterization activities could cause damage to cultural or natural features of a cultural landscape. Construction vehicles and increased dust generated during ground disturbances could temporarily impact the visual setting of the cultural landscapes. Long-term impacts to the visual setting of cultural landscapes could occur from the permanent presence of project structures. Soil erosion from water used to clean roads and facilities during operations and maintenance activities could impact the visual setting of cultural landscapes. Visual impacts to cultural landscapes would mostly be removed after decommissioning, as long as the site was properly restored to its preconstruction state.

Typical mitigation measures for cultural landscapes are listed in Section IV.8.3.1.1.1. Depending on the resource, implementation of these measures could reduce impacts to a less than significant level. However, the majority of the impacts to cultural landscapes from renewable energy development would be significant and unavoidable.

IV.8.3.2 Preferred Alternative

IV.8.3.2.1 Plan-Wide Impacts of Implementing the DRECP: Preferred Alternative

IV.8.3.2.1.1 Plan-Wide Impacts and Mitigation Measures from Renewable Energy and Transmission Development

Impact Assessment

Renewable energy development activities covered by the DRECP would be confined to DFAs. Under the Preferred Alternative, an estimated 12,543 archaeological and built-environment resources would occur within DFAs (see Appendix R2.8, Table R2.8-6). The density of these resources by ecoregion is shown in Figure IV.8-2. TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner.

Impact CR-1: Plan components could affect historic period built-environment resources.

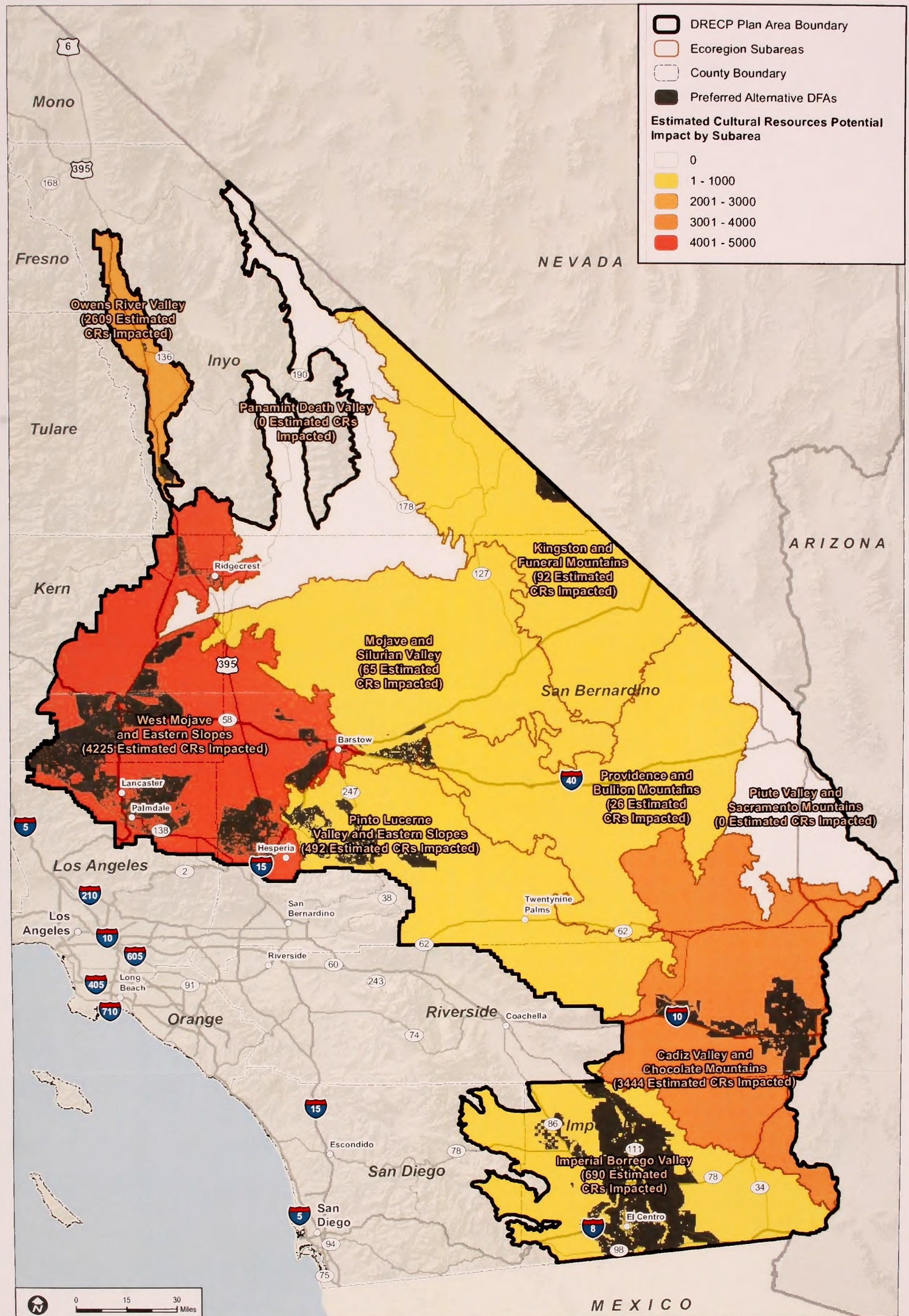
As described in more detail in Section IV.8.2, all phases of renewable energy development under all of the alternatives have the potential to impact historic period built-environment resources.

Impact CR-2: Plan components could affect prehistoric and historic period archaeological resources.

As described in more detail in Section IV.8.2, all phases of renewable energy development under all of the alternatives have the potential to impact prehistoric and historic period archaeological resources.

Impact CR-3: Plan components could disturb human remains or cultural items, including funerary objects, sacred objects, and objects of cultural patrimony.

As described in more detail in Section IV.8.2, disturbance of human remains or cultural items, including funerary objects, sacred objects, and objects of cultural patrimony could result from construction-related ground-disturbance activities. Ground-disturbance activities such as grading, vegetation clearing, and foundation excavations could lead to the unintentional discovery of these types of cultural items, which are typically unmarked.



Sources: ESRI (2014); CEC (2013); BLM (2013); CDFW (2013); USFWS (2013); RECON 2014

FIGURE IV.8-2

Estimated Number of Cultural Resources within DFAs by Ecoregion Subarea – Preferred Alternative

Draft DRECP and EIR/EIS

August 2014

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Impact CR-4: Plan components could affect cultural landscapes.

As described in more detail in Section IV.8.2, all phases of renewable energy development under all of the alternatives have the potential to impact cultural landscapes.

Impacts in Study Area Lands

Study Area Lands refer to three categories of lands: Future Assessment Areas (FAAs), Special Analysis Areas (SAAs) and DRECP Variance Lands. Development in any of the Study Area Lands could adversely impact resources important to tribes and other communities.

Future Assessment Areas (FAAs). Lands within FAAs are neither reserve lands nor DFAs; they are simply areas that are deferred for future assessment. The future assessment will determine suitability for renewable energy development or for ecological conservation. If renewable energy development occurs on FAA lands, a Land Use Plan Amendment would not be required. FAAs for each alternative are included and located as shown in Volume II, Figure II.3-1 and in Chapter IV.1, Table IV.1-2. The FAAs represent areas where renewable energy development or inclusion to the reserve design could be implemented through an amendment to the DRECP but additional assessment would be needed.

Because most of the FAAs are presented as "undesignated areas" in the action alternatives, there would be no difference between the FAAs in the Preferred Alternative except that renewable development in an FAA would not require a BLM Land Use Plan Amendment so the environmental review process would be somewhat simpler than if the location were left undesignated.

There are 128,000 acres of FAAs in the Preferred Alternative (Table IV.1-2). A total of 2,560 archaeological and built-environment resources are estimated within these FAAs. TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner.

Special Analysis Areas (SAAs). Two areas are defined as SAAs in the Preferred Alternative, representing areas subject to ongoing analysis. These areas (located in the Silurian Valley and just west of U.S Route 395 in Kern County) cover 42,000 acres (Chapter IV.1, Table IV.1-3) and have high value for renewable energy development, high value for ecological and cultural conservation, and high value for recreation. SAA lands are expected to be designated in the final EIR/EIS as either DFAs or included in the reserve design/Conservation Designation. Under the Preferred Alternative, 840 archaeological and built-environment resources are estimated within SAAs. TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner.

DRECP Variance Lands. These lands represent the BLM Solar PEIS Variance Lands as screened for the DRECP and EIR/EIS based on BLM screening criteria. Covered Activities could be permitted for NCCP purposes only through an NCCP Plan amendment. However, development of renewable energy on Variance Lands would not require a BLM Land Use Plan Amendment so the environmental review process would be somewhat simpler than if the location were left undesignated (for further information refer to Section II.3.1.1, Overview of the Preferred Alternative).

Under the Preferred Alternative there would be 13,000 acres of Variance Lands (Chapter IV.1, Table IV.1-4). An estimated 260 archaeological and built-environment resources are present on Variance Lands in this alternative. TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner.

Impact Reduction Strategies and Mitigation

The implementation of the Plan under the Preferred Alternative would result in conservation of some desert lands as well as the development of renewable energy generation and transmission facilities on other lands. The impacts of the renewable energy development covered by the Plan would be lessened in several ways. First, the Plan incorporates CMAs for each alternative (listed below), including specific biological reserve design components and LUPA components. Also, the implementation of existing laws, orders, regulations and standards would reduce the impacts of project development. If significant impacts would still result after implementation of CMAs and compliance with applicable laws and regulations, then specific mitigation measures are recommended below in this chapter.

Although land would be conserved under the Preferred Alternative, and some of these conserved lands would contain known cultural resources, there would still be damage or alteration to as-yet unknown cultural resources. Because the traditional tribal world-view typically values cultural and spiritual resources holistically, the conservation of some cultural resources would not mitigate the damage or alteration of other cultural resources in DFAs.

Conservation and Management Actions

The conservation strategy for the Preferred Alternative (presented in Volume II, Section II.3.1.1) defines specific actions that would reduce the impacts of this alternative. The conservation strategy includes definitions of the reserve design and specific CMAs for the Preferred Alternative. While the CMAs were developed for BLM lands only, this analysis assumes that all CMAs would also be applied to nonfederal lands. As such, the details of these CMAs would be modified to meet the requirements of state law, the CEC, or other appropriate state lead agencies. However, those modifications are not presented here.

CMAs are not mitigation measures. However, many CMAs would help reduce impacts to cultural resources; they are presented below. It is important to note that cultural resources CMAs and National Scenic and Historic Trails CMAs associated with National Landscape Conservation System Lands and Areas of Critical Environmental Concern vary significantly by alternative.

Planning Area–Wide National Conservation Land Management Direction

- **Cultural Resources** – With the exception of research, no actions that would result in adverse effects to historic properties, as defined under Section 106 of National Historic Preservation Act and the implementing regulations at 36 CFR Part 800, will be authorized.

National Trails

DRECP will make decisions for three National Trails (Pacific Crest National Scenic Trail, Old Spanish National Historic Trail and the Juan Bautista de Anza National Historic Trail) to designate the National Trail Management Corridors and management actions

Conservation and Management Actions for National Trails

- **Management Corridor Width** (see also maps): Establish a National Trail Management Corridor width generally 5 miles from the centerline of the trail.
- **Management of Trail Corridors** – Manage National Trails as components of BLM's NLCS. Where National Trails overlap other National Conservation Lands, the more protective CMAs or land use allocations will apply.
- **Lands and Realty**
  - **Land Use Authorizations**
    - **Site Authorization** – NSHT Management Corridors would be avoidance areas. Sites authorizations would require mitigation/compensation resulting in net benefit to the NSHT.
    - **Linear Rights-of-Way** – NSHT Management Corridors would be avoidance areas except in designated transmission corridors. Exclude cultural landscapes, high potential historic sites, and high potential route segments identified along historic trails corridors from transmission except in approved transmission corridors. Where development affects trail management corridors, an analysis must be performed to ensure that it does not substantially interfere with the nature and purposes of the trail, and that mitigation/compensation results in a net benefit to the trail.

    - **Renewable Energy Rights-of-Way** – Exclude cultural landscapes, high potential historic sites, and high potential route segments identified along historic trails corridors from transmission except in approved DFAs and transmission corridors. Where development affects trail management corridors, an analysis must be performed to ensure that it does not substantially interfere with the nature and purposes of the trail, and that mitigation/compensation results in a net benefit to the trail.
  - **Land Tenure**
    - Exchange would be permitted if it results in net benefit to NSHT values.
    - Purchase and donations would be also be permitted to acquire lands within NSHT.
- **Minerals**
  - **Locatable Minerals** – For the purposes of locatable minerals, National Trail corridors would be treated as "controlled" or "limited" use areas in the CDCA, requiring a Plan of Operations for greater than casual use under 43 CFR 3809.11.
  - **Saleable Minerals** – NSHT Management Corridors would be available for saleable mineral development if it does not substantially interfere with nature and purpose of NSHT, and would require mitigation/compensation must result in net benefit to NSHT values
  - **Leasable Minerals** – NSHT Management Corridors would be available for leasing with a No Surface Occupancy stipulation. Surface coal mining would not be allowed within the NSHT Management Corridors.
- **Recreation and Visitor Services** – Commercial and competitive Special Recreation Permits would be considered on a case-by –case basis for activities consistent with the values of the National Conservation lands unit.
- **Cultural Resources**
  - Undertakings that result in adverse effects to NHTs and NSTs that are historic properties as defined under Section 106 of National Historic Preservation Act and the implementing regulations at 36 CFR Part 800 will not be authorized.
  - All NHT segments will be assumed to contain remnants, artifacts and other properties eligible for the National Register of Historic Places, pending evaluation.
- **Visual Resources Management** – All NSHT Management Corridors will be designated as VRM class II, except within approved transmission corridors (VRM Class III) and DFAs (VRM Class IV). However, state of the art VRM BMPs for renewable energy will be employed commensurate with the protection of nationally significant

scenic resources and cultural landscapes to minimize the level of intrusion and protect trail settings.

- **Mitigation Requirements** – If a segment of a National Trail or proposed NHT traverses a DFA, it will be subject to mitigation for impacts to trail features, including, but not limited to, and not in priority order: avoidance, the cost of trail relocation, on-site mitigation and off-site mitigation. Compensation can include acquisition or restoration of corridor features and landscapes will be at a minimum of 2:1, and must result in a net benefit to the overall trail corridor. Development of high potential route segments must not substantially interfere with the nature and purposes of the National Trail.

BLM-Specific Conservation and Management Actions

Cultural and Tribal CMAs for the Entire Planning Area

- Continue working with the California Office of Historic Preservation to develop and implement a program for record keeping and tracking agency actions that meets the needs of BLM and OHP organizations pursuant to existing State and National agreements and regulation (BLM State Protocol Agreement; BLM National Programmatic Agreement).
- Using relevant archaeological and environmental data, identify priority geographic areas for new field inventory, based upon a probability for unrecorded significant resources and other considerations.
- Identify places of traditional cultural and religious importance to federally recognized tribes and maintain access to these locations for traditional use.
- Design BLM actions and authorizations to minimize impacts on cultural resources including places of traditional cultural and religious importance to federally recognized tribes.
- Develop interpretive material to correspond with recreational uses to educate the public about protecting cultural resources and avoiding disturbance of archaeological sites.
- Develop partnerships to assist in the training of groups and individuals to participate in site stewardship programs.
- Coordinate with visual resources staff to ensure VRM classes consider cultural resources and tribal consultation to include landmarks of cultural significance to Native Americans (TCPs, trails, etc.).
- Conduct regular contact and consultation with federally recognized Tribes and individuals, consistent with statute, regulation and policy.

- Promote desert vegetation communities by compensatory mitigation, off-site mitigation, and other means for Native American vegetation collection.
- Promote and protect desert fan palm oasis communities by compensatory mitigation, off-site mitigation, and other means for Native American cultural values.
- Promote and protect desert microphyll woodland communities by compensatory mitigation, off-site mitigation, and other means for Native American cultural values.

Other CMAs for the Entire Planning Area

- **Biological Resources.** CMAs developed for biological resources that could reduce impacts to cultural resources from soil erosion, project runoff, oil or other contaminant spill, and the introduction of invasive species during restoration and revegetation. The CMAs would apply to all action alternatives (Preferred, Alternatives 1 through 4).
- **Air Resources.** Implementation of CMAs related to air quality could reduce temporary impacts to the visual setting of cultural resources from fugitive dust by requiring that air quality standards for fugitive dust exceed local standards and apply seven days a week. In addition, these CMAs would require the development of a fugitive dust control plan (Section II.3.2.3.1.2).
- **Comprehensive Trails and Travel Management.** Implementation of CMAs related to maintaining and managing adequate roads and trails could reduce impacts to trails and trail segments important to Native Americans by prohibiting large-scale disturbance within 0.5 mile of the centerline of Tier 2 roads/primitive roads and 300 feet from the centerline of Tier 3 primitive roads/trails. In addition, this would require the management of road, primitive road, and trail access to and within SRMAs, Extensive Recreation Management Areas, Off-Highway Vehicle Open Areas, and Tier 1, 2, and 3 roads.
- **Visual Resources.** Implementation of CMAs related to visual resources would reduce impacts to the visual setting of resources of Native American concern, including traditional cultural properties and sacred sites, landscapes, and archaeological resources, by ensuring that (1) development within each VRM Class polygon meets the VRM objectives as measured through a visual contrast rating process and (2) transmission facilities are designed to create the least amount of visual contrast.
- Cultural and Tribal CMAs in Development Focus Areas and DRECP Study Areas, and Transmission Corridors

The following CMAs will apply to renewable energy and transmission ROWs:

BLM developed and maintains a geodatabase for Cultural Resources and Cultural Resources investigations in a Geographic Information System (GIS). The geodatabase is regularly updated with newly recorded and re-recorded resource and investigation data. However, while the geodatabase includes location information (feature classes or shapefiles), the associated information about each resource or investigation (attribute data) is limited or inconsistent. As it exists now, the geodatabase cannot be used for predictive analyses like those recommended in A Strategy for Improving Mitigation Policies and Practices of the Department of the Interior (Interior 2014). However, with some updates, the geodatabase would be a powerful tool for identifying potential conservation priorities as well as development opportunities. Many of the CMAs below are intended to facilitate the update of BLMs geodatabase, and require its use when the updates are complete.

- Require the applicant to pay all appropriate costs associated with the following processes, through the appropriate BLM funding mechanism:
  - All appropriate costs associated with BLM's analysis of the DRECP geodatabase and other sources for cultural resources sensitivity;
  - All appropriate costs associated with preliminary sensitivity analysis;
  - All appropriate costs associated with the Section 106 process including the identification and defining of cultural resources. These costs may also include logistical, travel, and other support costs incurred by tribes in the consultation process.
  - All appropriate costs associated with updating the DRECP cultural resources geodatabase with project specific results.
- A management fee, defined at a per-acre rate and annual escalation provision for the life of the grant, will paid to BLM as partial mitigation for the cumulative effects on cultural resources across the DRECP area and may be used to develop regional research designs and other forms of off-site and compensatory mitigation.
- The management fee rate will be determined through the programmatic Section 106 consultation process that will be completed as part of the DRECP land use plan amendment.
- Demonstrate that results of cultural resources sensitivity, based on the DRECP geodatabase, and other sources, are used as part of the initial planning pre-application process and to select of specific footprints for further consideration.
- Provide a statistically significant sample survey as part of the pre-application process, unless BLM determines the DRECP geodatabase and other sources are adequate to assess cultural resources sensitivity of specific footprints.

- Provide justification in the application why the project considerations merit moving forward if the specific footprint lies within an area identified or forecast as sensitive for cultural resources by BLM.
- Complete the Section 106 Process as specified in 36 CFR Part 800, or via an alternate procedure, allowed for under 36 CFR Part 800.14 prior to issuing a ROD or ROW grant on any utility-scale renewable energy or transmission project. For utility-scale solar energy developments, BLM may follow the Solar PA.
- The Ford Dry Lake Basin and surrounding shoreline up to the 380 foot contour comprises mitigation agreed upon earlier by the Genesis project owners, BLM, CEC, the Colorado River Indian Tribes, and the Ft. Mojave tribe as the proposed Ford Dry Lake National Register Archaeological District and may not be developed.

Cultural and Tribal CMAs for National Conservation Lands and Areas of Critical Environmental Concern

- Survey, identify and record new cultural resources within ACEC boundaries.
- Update records for existing cultural resources within ACECs.
- Develop baseline assessment of specific natural and man-made threats to cultural resources in ACECs (i.e., erosion, looting and vandalism, grazing, OHV).
- Provide on-going monitoring for cultural resources based on the threat assessment.
- Identify, develop or incorporate standard protection measures and best management practices to address threats.
- Where specific threats are identified, implement protection measures consistent with agency Section 106 responsibilities.

Laws and Regulations

Similar to the No Action Alternative, implementation of existing laws and regulations would reduce certain impacts of Plan implementation. Relevant regulations are presented in the Regulatory Setting in Volume III. The requirements of relevant laws and regulations are summarized for the No Action Alternative in Section IV.8.3.1.1.1.

Mitigation Measures

After implementation of the CMAs and existing laws and regulations, mitigation measures are recommended to further reduce some of the DRECP's impacts to cultural resources, as outlined below. Some of these mitigation measures may be included in Section 106 agreement documents (such as programmatic agreements) or CEC Conditions of Certification for specific resources impacted by specific projects or for the Plan Area as a whole. Differences

between state and federal legal requirements may result in differences between mitigation measures for resources located on federal land as opposed to those located on other lands, and may require close coordination between state and federal lead agencies.

Mitigation Measures for Impact CR-1: Plan components could affect historic period built-environment resources.

One comprehensive mitigation measure is recommended to protect historic period built-environment resources.

CR-1a **Protect Historic Period Built-Environment Resources.** The following requirements shall be implemented:

a) Develop a treatment plan for the unanticipated discovery of cultural resources during all phases of project development, including procedures for work to be halted in the vicinity of the find. The area of the find would then be protected to ensure that resources are not removed, handled, altered, or damaged while they are evaluated and until the adverse effects are resolved.

b) Train project personnel on the importance of cultural resources and follow procedures for avoiding cultural resources and reporting any culturally sensitive resources.

c) Require that surface disturbances be restricted or prohibited within the viewshed of an NRHP/CRHR-eligible resource if the eligibility of that resource is based upon its visual setting.

d) Hire professionals that meet U.S. Secretary of Interior's Professional Qualifications Standards, as published in 36 CFRFR 61 for architectural history as appropriate, to write any required plans and to implement all plans and mitigation measures.

e) Employ the use of cultural resource monitors during ground-disturbing activities when field conditions merit.

f) Create data recovery plans that would address NRHP/CRHR-eligible cultural resources that would be impacted by the project by requiring some level of extracting the scientific value and analysis of the resource prior to development.

g) Record building or structures in HABS/HAER at a level compatible with NPS standards. Adequate recordation of a built-environment resource shall include the following:

- Site-specific history and appropriate contextual information regarding the particular resource, in addition to archival research and comparative studies.
- Accurate mapping of the noted resources, scaled to indicated size and proportion of the structures.
- Architectural descriptions of the structures.
- Photographic documentation of designated resources.
- Recordation using measured architectural drawings.

h) Require the preservation or reuse of an eligible structure to follow the DOI's *Standards and Guidelines for Archeology and Historic Preservation*. If the building is considered a historical resource under CEQA, the local building inspector must grant code alternatives under the State Historic Building Code.

i) Take additional steps, where HABS/HAER documentation does not provide adequate mitigation, to reduce impacts to a less than significant level, implement mitigation that captures the history and memory of the resource, and share this information with the public using various methods such as Web media, static displays, interpretive signs, on-site volunteer docents, or informational brochures.

Mitigation Measures for Impact CR-2: Plan components could affect prehistoric and historic period archaeological resources.

One comprehensive mitigation measure is recommended to protect prehistoric and historic period archaeological resources.

CR-2a **Protect Prehistoric and Historic period Archaeological Resources.** The following requirements shall be implemented:

a) Develop a treatment plan for the unanticipated discovery of cultural resources during all phases of project development, including procedures for work to be halted in the vicinity of the find. The area of the find would then be protected to ensure that resources are not removed, handled, altered, or damaged while they are evaluated and until the adverse effects are resolved.

b) Train project personnel on the importance of cultural resources and follow procedures for avoiding cultural resources and reporting any culturally sensitive resources.

c) Employ Native American and/or cultural resource monitors during ground-disturbing activities when field conditions merit.

d) Require that surface disturbance be restricted or prohibited within the viewshed of an NRHP/CRHR-eligible resource if the eligibility of that resource is based upon its visual setting.

e) Hire professionals that meet the U.S. Secretary of Interior's Professional Qualifications Standards, as published in 36 CFR 61 for prehistoric archaeology to write any required plans and to implement all plans and mitigation measures.

f) Conduct analyses to determine the impact of vibration from ground-disturbance activities (such as geotechnical boring) on the structural integrity of built-environment resources and prehistoric resources such as rock art.

g) Create data recovery plans that would address NRHP/CRHR-eligible cultural resources that would be impacted by the project by requiring some degree of extracting the scientific value and analysis of the deposited cultural material prior to development.

h) Establish conservation easements where individual resources could be preserved.

i) Require technical reports to meet the requirements outlined in *California Office of Historic Preservation's Archaeological Resource Management Reports: Recommended Contents and Format* and in the Secretary of the Interior's Standards for Archeological Documentation.

Mitigation Measures for Impact CR-3: Plan components could disturb human remains or cultural items, including funerary objects, sacred objects, and objects of cultural patrimony.

One comprehensive mitigation measure is recommended to protect these cultural items.

CR-3a **Protect human remains and cultural items, including funerary objects, sacred objects, and objects of cultural patrimony.** The following requirements shall be implemented:

a) Develop and implement a treatment plan for the inadvertent discovery of human remains or suspected human remains, cultural items

including funerary objects, sacred objects, and objects of cultural patrimony for all phases of development in accordance with applicable laws and regulations (e.g., NAGPRA) on federal lands. On nonfederal lands, those plans shall follow appropriate required regulations (PRC Section 5097.98; State Health and Safety Code Section 7050.5).

b) Employ the use of cultural resource monitors, including Native Americans, during ground-disturbing activities when field conditions merit it.

c) Hire relevant specialists that meet the U.S. Secretary of Interior's Professional Qualifications Standards, as published in 36CFR 61 to write and implement plans.

d) Assure that all bone is subject to inspection by a qualified osteologist.

Mitigation Measures for Impact CR-4: Plan components could affect cultural landscapes.

One comprehensive mitigation measure following the guidance in *A Strategy for Improving Mitigation Policies and Practices of the Department of the Interior* (Interior 2014) is recommended to protect cultural landscapes.

CR-4a **Protect Cultural Landscapes.** The following requirements shall be implemented:

a) Document the individual landscape characteristics and features in the context of the landscape as a whole. This should list contributing versus noncontributing features. The following provide guidance for documentation and treatment of cultural landscapes.

   1. NPS uses a cultural landscape report (CLR) as a guide for treatment and use of the cultural lands. This report is the principle treatment document for cultural landscapes and the main tool for long-term management of those landscapes.

2. Any treatment listed should be based on the Secretary of the Interior's Standard for the Treatment of Historic Properties and the Guidelines for the Treatment of Cultural Landscapes.

3. NPS also provides guidance in Preservation Brief 36; Protecting Cultural Landscapes: Planning, Treatment and Management of Historic Landscapes.

4. For landscapes with built-environment features, documentation of the landscape should follow the guidelines from NPS for Historic American Landscapes Survey (HALS).

b) Minimize effect of the proposed project by:

1. Minimize impacts to contributing landscape characteristics and features.
2. Minimize development within the viewshed of a cultural landscape.
3. Implementing standard noise mitigation measures (as required in Chapter IV.21, Noise and Vibration) when a renewable energy facility would be near cultural landscapes to minimize the impacts of noise on the pristine and natural setting of the landscape.

c) Monitor and limit access to the cultural landscape to prevent damage from human use.

d) Restore the feel and significant characteristics of the cultural landscape. One example is to replant native plants if those are contributing elements to the cultural landscape.

e) Prepare interpretive information such as booklets, interpretive panels, exhibits, or videos, for the public to understand the significance of the landscape and get a better feel for it.

f) Evaluate the effects of proposed project on individual landscape features and the landscape as a whole.

IV.8.3.2.1.2 Impacts from the Reserve Design

Under the Preferred Alternative, cultural resources would be protected from disturbance by establishing conservation areas. Proposed new ACEC and NLCS designations would protect cultural resources. This would occur partly because of disturbance caps designed to conserve and protect the resource values, and renewable energy development would be prohibited in these designations. Development in NLCS lands would be limited to 1% of total authorized disturbance, or to the level allowed by collocated ACEC/wildlife allocations, whichever is more restrictive. These disturbance caps and other management actions would minimize surface disturbance and provide protection for cultural resources.

Under the Preferred Alternative, an estimated 576,735 resources (or 45% of all known archaeological and built-environment resources) would occur within Reserve Design Lands (see Appendix R2.8, Table R.8-8). TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner. Due to their

location within the conservation reserve system, resources in these areas would not be subject to impacts from renewable energy development.

IV.8.3.2.2 Impacts of DRECP Land Use Plan Amendment on BLM Land: Preferred Alternative

This section addresses two components of effects of the BLM LUPA: the streamlined development of renewable energy and transmission on BLM land under the LUPA, and the impacts of the amended land use plans themselves.

IV.8.3.2.2.1 Impacts from Renewable Energy and Transmission Development on BLM Land

Under the Preferred Alternative, an estimated 6,855 archaeological and built-environment resources are within DFA footprints on the BLM LUPA lands shown in Table R2.8-9 (Appendix R2.8). Overall, approximately 1.2% (6,855) of the estimated 586,141 archaeological and built-environment resources within BLM LUPA lands are within DFAs under the Preferred Alternative. TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner.

IV.8.3.2.2.2 Impacts of Changes to BLM Land Designations

Proposed ACEC and NLCS designations on BLM lands could provide benefits to cultural resources by establishing disturbance caps, which are designed to conserve and protect resource values, and renewable energy development would be prohibited in these designations. Development on NLCS lands would be limited to 1% of total authorized disturbance, or to the level allowed by collocated ACEC/wildlife allocations, whichever is more restrictive. These disturbance caps and other management actions would minimize surface disturbance and provide protection for cultural resources.

Under the Preferred Alternative, cultural resources found within BLM land designations on BLM LUPA lands are shown in Table R2.8-10 (Appendix R2.8). The majority of the estimated archaeological and built-environment resources (176,810) occur within the NLCS lands. In the Preferred Alternative, the National Trail Management Corridor is 5 miles on either side of the trail's centerline. As a result, an estimated 28,437 cultural resources would be protected. TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner.

IV.8.3.2.3 Impacts of Natural Community Conservation Plan: Preferred Alternative

The analysis of Covered Activities under the NCCP is equivalent to the Plan-wide analysis of the interagency alternatives. Reserve design features and other conservation actions under the NCCP alternatives represent more detailed categories of the reserve design under the interagency Plan-wide alternatives. These NCCP differences in reserve design features do not affect nonbiological resources analyzed in this document, and the analysis of reserve design and conservation and management actions under the NCCP is therefore equivalent to the Plan-wide analysis of the interagency alternatives, as described in Section IV.8.3.2.1.

IV.8.3.2.4 Impacts of General Conservation Plan

The impacts of the GCP for the Preferred Alternative would be similar to those defined in Section IV.8.3.2.1 for the Plan-wide analysis, but they would occur on nonfederal lands only.

Under the Preferred Alternative, cultural resources found within DFA footprints on GCP lands are shown in Table R.8-11 (Appendix R2.8). For GCP lands under the Preferred Alternative, an estimated 5,662 archaeological and built-environment resources could occur within the technology footprints in the DFAs. This is 1% of the total archaeological and built-environment resources within the GCP lands. This number was produced based on the estimated number of cultural resources per acre and the number of acres in the DFA footprints. Under the BLM Cultural Resources Geodatabase, non-Federal lands had a survey coverage of 10.6% (see Section III.8.3.3) and so without a full cultural resources inventory, an accurate number of cultural resources cannot be determined. Under the Preferred Alternative, archaeological and built-environment resources found within GCP Reserve Design Lands are shown in Table R2.8-12. Of the total GCP lands, approximately 13% would be within conservation areas. TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner.

IV.8.3.2.5 Impacts Outside the Plan Area

IV.8.3.2.5.1 Impacts of Transmission Outside the Plan Area

The impacts of Outside the Plan Area transmission on cultural resources would be the same under all alternatives. These impacts are as described for the No Action Alternative in Section IV.8.3.1.5.

IV.8.3.2.5.2 Impacts of BLM LUPA Decisions Outside the Plan Area

Under the Preferred Alternative, cultural resources found within BLM land designations outside the Plan Area are shown in Table R2.8-13 (Appendix R2.8). There are 4,635 archaeological and built-environment resources on proposed NLCS lands, 5,758 on existing and proposed ACEC lands, and 1,843 within NSHT Management Corridors. The width of these corridors is particularly important as they vary by alternative. TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner. Impacts of BLM land designations outside the Plan Area to cultural resources would be the same as those described under Section IV.8.3.2.1.2.

IV.8.3.2.6 CEQA Significance Determination for the Preferred Alternative

The model defines an estimated 11,642 archaeological and built-environment resources within the DFA footprints of the Preferred Alternative. TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner. It is important to note, however, that many portions of the Southern California Desert remain unsurveyed and the identification, evaluation, and treatment of cultural resources would need to be conducted on a project-specific level to ensure that as-yet unidentified cultural resources are taken into account.

Implementation of the Plan would result in conservation of some desert lands as well as the development of renewable energy generation and transmission on other lands. The impacts of the renewable energy development covered by the Plan would be lessened in several ways. First, the Plan incorporates CMAs for each alternative, including specific biological reserve design components and LUPA components. Also, the implementation of existing laws, orders, regulations and standards would reduce the impacts of project development. Under the Preferred Alternative, an estimated 794,095 archaeological and built-environment resources located on 13,730,325 acres of Reserve Design Lands would be conserved. TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner. Conservation actions in the Plan would protect all types of cultural resources by setting aside land for conservation. However, the designation of Reserve Design Lands does not guarantee that cultural resources would be protected, because unless management decisions provide different direction, federal and state regulations currently only require that impacts to cultural resources be considered, not necessarily prevented.

CR-1: Plan components could adversely affect historic period built-environment resources. CEQA significance determinations for impacts to historic period built-environment resources from the Preferred Alternative are the same as those described for the No Action Alternative. Implementation of Mitigation Measure CR-1a for historic period built-environment resources would reduce impacts to these resources to less than significant.

CR-2: Plan components could adversely affect prehistoric and historic period archaeological resources. The CEQA significance determinations for the impacts to prehistoric and historic period archaeological resources from the Preferred Alternative are the same as those described for the No Action Alternative. Mitigation Measure CR-2a for prehistoric and historic period archaeological resources is recommended; depending on the resource, implementation of these measures could reduce impacts to a less than significant level. However, the majority of the impacts to prehistoric and historic period archaeological resources from renewable energy development would be significant and unavoidable, even with mitigation.

CR-3: Plan components could disturb human remains or cultural items, including funerary objects, sacred objects, and objects of cultural patrimony. The CEQA significance determinations for the impacts to human remains or cultural items from the Preferred Alternative are the same as those described for the No Action Alternative. Mitigation Measure CR-3a is recommended to protect human remains and cultural items. However, even with the implementation of these mitigation measures the impacts to human remains or cultural items would be significant and unavoidable even with mitigation.

CR-4: Plan components could affect cultural landscapes. The CEQA significance determinations for the impacts to cultural landscapes from the Preferred Alternative are the same as those described for the No Action Alternative. Mitigation Measure CR-4a for cultural landscapes is recommended; depending on the resource, implementation of these measures could reduce impacts to a less than significant level. However, the majority of the impacts to cultural landscapes from renewable energy development would be significant and unavoidable, even with mitigation.

IV.8.3.2.7 Comparison of Preferred Alternative with No Action Alternative

Chapter IV.27 presents a comparison of all alternatives and the No Action Alternative across all disciplines. This section summarizes the comparison of the Preferred Alternative with the No Action Alternative.

IV.8.3.2.7.1 Preferred Alternative Compared with No Action Alternative for Plan-Wide DRECP

Cultural resources vary by alternative in five main ways: (1) the estimated number of resources potentially impacted in DFAs, (2) the estimated number of resources conserved

in Reserve Design Lands, (3) the cultural resources CMAs for NCLS lands, (4) the CMAs for National Historic Trails on NCLS lands, and (5) the NHT corridor width and the number of resources conserved within the corridor.

Table IV.8-1
Comparison of Preferred Alternative with the No Action Alternative for Plan-Wide DRECP

	Preferred Alternative	No Action
Number of resources in DFAs	12,543	11,689
Number of resources conserved in Reserve Design Lands or BLM protected lands	576,735	543,265
Plan-wide CMAs (general)	Reduce impacts cultural resources	Adverse effects will be addressed only through existing laws, regulations, and typical mitigation
Cultural resources CMAs for NLCS lands only.	With exception of research, no adverse effects to historic properties authorized.	Adverse effects to historic properties addressed through Section 106.
National Historic Trails CMAs within NCLS lands	No adverse effects to NHT and NHT/historic properties authorized. All NHT segments assumed to be eligible for NRHP pending evaluation.	Adverse effects to NHT addressed through NEPA or Section 106 process as appropriate.
NHT corridor width and number of resources conserved	5 miles on either side of centerline 28,437	None

The Preferred Alternative would impact more cultural resources in the DFA footprints as compared to the No Action Alternative. However, significantly more resources would be conserved in Reserve Design Lands and in NHT corridors. In addition, the CMAs for these resources are significantly more protective than for the No Action Alternative.

Overall, the Preferred Alternative is more protective to cultural resources than the No Action Alternative.

Geographic Distinctions

As this is a programmatic analysis, no particularly sensitive cultural resources have been identified in any particular location within the DRECP Study Area. However, different Eco-region Subareas have different estimated cultural resources densities and some location types are known to be sensitive for cultural resources.

Under the Preferred Alternative, the Silurian Valley would be an SAA. Under the No Action Alternative this location would be undesignated. In each alternative this location could either be developed or conserved, therefore there is no difference between the alternatives for cultural resources.

Under the Preferred Alternative, the Hidden Hills area of Inyo County would be a DFA. Under the No Action Alternative, this location would be undesignated. Based on previous studies associated with a proposed solar project in this location, the Hidden Hills area is known to be very culturally sensitive because of the presence of a segment of the Salt Song Trail, Route 66 and a National Historic Trail. Under the No Action Alternative, this location might be conserved; therefore, the No Action Alternative would be more protective of cultural resources than the Preferred Alternative.

Under the Preferred Alternative, the Notch in the Park, the Area north of Tehachapi and the area east of Twentynine Palms would be FAAs. Under the No Action Alternative, these locations would be undesignated. In each alternative these locations could either be developed or conserved, therefore there is no difference between the alternatives for cultural resources.

Under the Preferred Alternative, the Owens Valley Dry Lake would be a BLM conservation allocation. Under the No Action Alternative, this location would be undesignated. Dry lakes in this part of California are known to be very culturally sensitive. In addition, the Owens River Valley ecoregion subarea has the highest density of cultural resources of all of the DRECP ecoregion subareas (1.76 resources per acre). Therefore, the Preferred Alternative would protect more cultural resources in this location than the No Action Alternative.

Under the Preferred Alternative, Searles Lake between Ft. Irwin and China Lake would be undesignated. Under the No Action Alternative, this location would be undesignated. In each alternative this location could either be developed or conserved, therefore there is no difference between the alternatives for cultural resources.

Under the Preferred Alternative, the area along U.S. 395 north of Edwards Air Force Base would be an SAA. Under the No Action Alternative, this location would be undesignated. In each alternative this location could either be developed or conserved, therefore there is no difference between the alternatives for cultural resources.

IV.8.3.2.7.2 Preferred Alternative Compared with No Action Alternative for the BLM Land Use Plan Amendment

This section distinguishes alternatives by comparing the number of estimated cultural resources that would be conserved in BLM land designations (Tables R2.8-4 and R2.8-10) and the resources in BLM land designations that are also in DFAs and therefore might be impacted by development.

Table IV.8-2
Comparison of Preferred Alternative with the
No Action Alternative for the BLM Land Use Plan Amendment

Land Classifications	Preferred Alternative Estimated # of Resources	No Action Estimated # of Resources
SRMA	68,801	52,426
NLCS	176,810	N/A
Existing and Proposed ACEC	84,542	87,881
Wildlife Allocation	742	N/A
LWCs	11,237	N/A
Trail Management Corridors	28,437	N/A
BLM LUPA Land in DFA Footprint	6,855	N/A

While the number of resources conserved vary by each type of BLM land designation, cultural resources CMAs apply to NLCS, ACECs and Trail Management Corridors and so the importance of those designations are emphasized here. Overall, a larger number of resources would be protected more effectively by the Preferred Alternative as compared to the No Action Alternative.

IV.8.3.2.7.3 Preferred Alternative Compared with No Action Alternative for NCCP

The impacts of the NCCP for the Preferred Alternative are the same as those defined in Section IV.8.3.2.1 for the Plan-wide analysis. As a result, the comparison of the Preferred Alternative with the No Action Alternative for the NCCP is the same as described for Plan-wide DRECP.

IV.8.3.2.7.4 Preferred Alternative Compared with No Action Alternative for the GCP

There would not be a GCP under the No Action Alternative. The No Action Alternative assumes that renewable energy and transmission development and mitigation for such projects in the Plan Area would occur on a project-by-project basis in a pattern consistent with past and ongoing renewable energy and transmission projects.

IV.8.3.3 Alternative 1

IV.8.3.3.1 Plan-Wide Impacts of Implementing the DRECP: Alternative 1

IV.8.3.3.1.1 Plan-Wide Impacts and Mitigation Measures from Renewable Energy and Transmission Development

Impact Assessment

Renewable energy development activities covered by the DRECP would be confined to DFAs. Under Alternative 1, an estimated 18,928 archaeological and built-environment resources would occur within DFAs (see Appendix R2.8, Table R2.8-14). The density of these resources by ecoregion is shown in Figure IV.8-3. TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner. Each impact is described below.

Impact CR-1: Plan components could affect historic period built-environment resources.

As described in more detail in Section IV.8.2, all phases of renewable energy development under all of the alternatives have the potential to impact historic period built-environment resources.

Impact CR-2: Plan components could affect prehistoric and historic period archaeological resources.

As described in more detail in Section IV.8.2, all phases of renewable energy development under all of the alternatives have the potential to impact prehistoric and historic period archaeological resources.

Impact CR-3: Plan components could disturb human remains or cultural items, including funerary objects, sacred objects, and objects of cultural patrimony.

As described in more detail in Section IV.8.2, disturbance of human remains or cultural items could result from construction-related ground-disturbance activities. Ground-disturbing activities such as grading, vegetation clearing, and foundation excavations could lead to the unintentional discovery of burials and cultural items, which are typically unmarked.

Impact CR-4: Plan components could affect cultural landscapes.

As described in more detail in Section IV.8.2, all phases of renewable energy development under all of the alternatives have the potential to impact cultural landscapes.

Impacts in Study Area Lands

Study Area Lands refer to three categories of lands: Future Assessment Areas (FAAs), Special Analysis Areas (SAAs) and DRECP Variance Lands. Development in any of the Study Area Lands could adversely impact resources important to tribes and other communities.

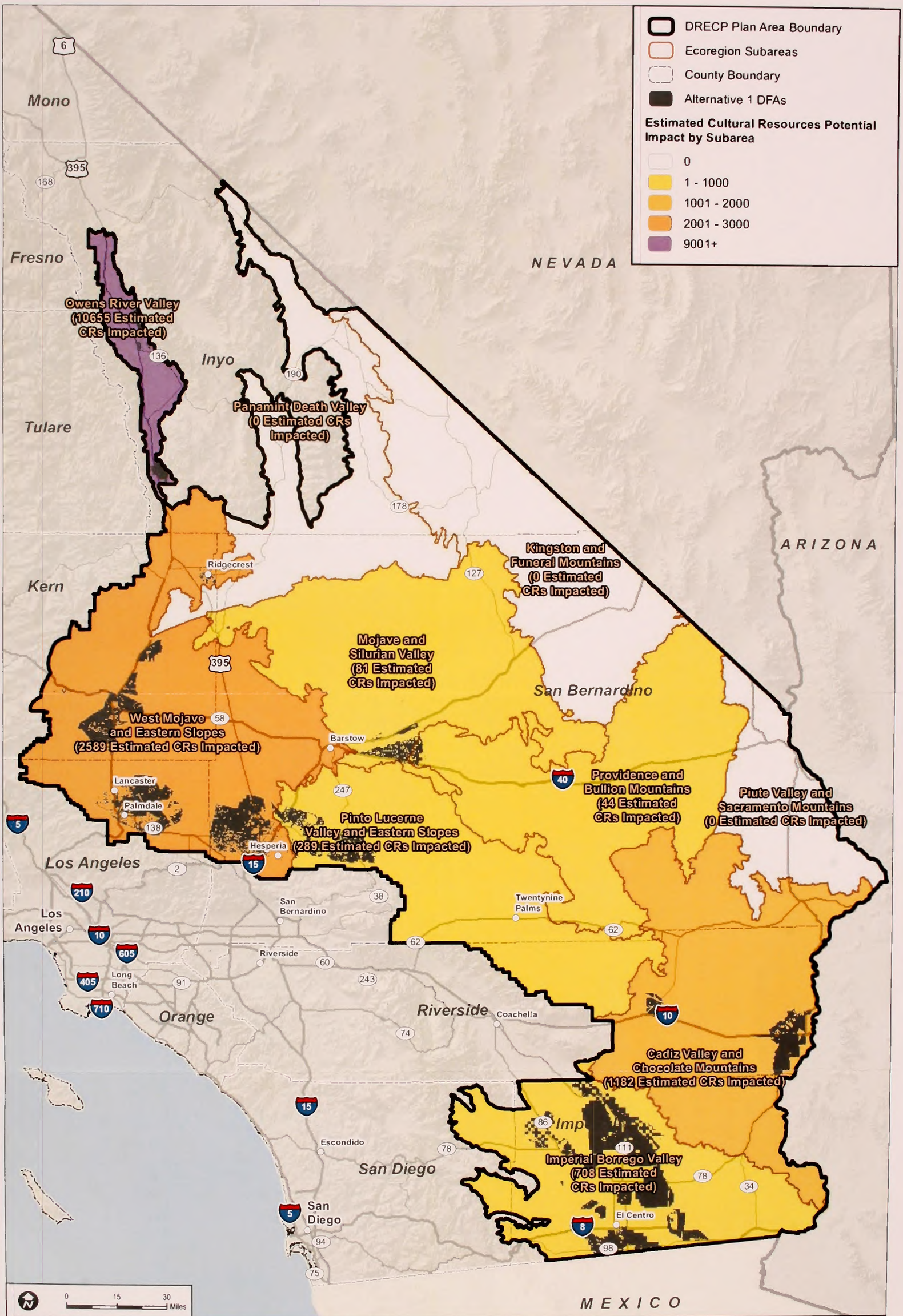
Future Assessment Areas. No FAAs were defined for Alternative 1.

Special Analysis Areas (SAAs). In Alternative 1 the two SAAs defined in the Preferred Alternative, would be conservation lands. These 42,000 acres (Table IV.1-3) are predicted to contain a total of 840 archaeological and built-environment resources. TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner.

DRECP Variance Lands. Under Alternative 1 there would be 37,000 acres of Variance Lands (Table IV.1-4). An estimated 740 archaeological and built-environment resources are present. TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner.

Impact Reduction Strategies and Mitigation

The implementation of the Plan would result in conservation of some desert lands as well as the development of renewable energy generation and transmission facilities on other lands. The impacts of the renewable energy development covered by the Plan would be lessened in several ways. First, the Plan incorporates CMAs for each alternative, including specific biological reserve design components and LUPA components. Also, the implementation of existing laws, orders, regulations, and standards would reduce the impacts of project development. If significant impacts would still result after implementation of CMAs and compliance with applicable laws and regulations, then specific mitigation measures are recommended.



Sources: ESRI (2014); CEC (2013); BLM (2013); CDFW (2013); USFWS (2013); RECON 2014

FIGURE IV.8-3

Estimated Number of Cultural Resources within DFAs by Ecoregion Subarea – Alternative 1

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Conservation and Management Actions

The conservation strategy for Alternative 1 (see Volume II, Section II.3.1.1) defines specific actions that would reduce the impacts of this alternative. The conservation strategy includes definition of the reserve design and specific CMAs (as defined for the Preferred Alternative) as well as those specific to Alternative 1. While the CMAs were developed for BLM lands only, this analysis assumes that all CMAs would be applied also to nonfederal lands. As such, the details of these CMAs would be modified to meet the requirements of state law, the CEC or other appropriate state lead agencies. However, those modifications are not presented here. It is important to note that cultural resources CMAs and National Scenic and Historic Trails CMAs associated with National Landscape Conservation System Lands and Areas of Critical Environmental Concern vary significantly by alternative.

Except for the following CMAs specific to Alternative 1 relating to cultural resources, all CMAs are the same as the Preferred Alternative.

Planning Area–Wide National Conservation Land Management Direction

- **Cultural Resources –** Any adverse effect to historic properties resulting from allowable uses will be addressed through the Section 106 process of the NHPA and the implementing regulations at 36 CFR Part 800.

Development Focus Areas

- **Soil, Water, and Water-Dependent Resources.** Would require that disturbance of sensitive soils be limited to 1% of the sensitive soil areas within a proposed project footprint. In addition, this would limit disturbance of desert pavement so that no more than 5% of the desert pavement within a proposed project footprint shall be disturbed for construction.

National Trails

- **Management corridor width (see also maps)**: Establish a National Trail Management Corridor, width generally ¼ mile from centerline. It is important to note these widths vary by alternative, resulting in varying amounts of conserved land.
- **Management of Trail Corridors:** Manage National Trails as components of BLM's National Landscape Conservation System. Where National Trails overlap other National Conservation Lands, the more protective CMAs or land use allocations would apply.

- Lands and Realty
  - Rights-of-Way
    - **Site Authorizations**: NSHT Management Corridors would be avoidance areas. Sites' ROW would require mitigation/compensation resulting in net benefit to the NSHT.
    - **Linear ROWs:** NSHT Management Corridors would be avoidance areas. Exclude cultural landscapes, high-potential historic sites, and high-potential route segments identified along historic trails corridors from transmission. Where development affects NSHT Management Corridors, an analysis must be performed to ensure that it does not substantially interfere with the nature and purposes of the trail, and that mitigation/compensation results in a net benefit to the trail.
    - **Renewable Energy ROW:** Exclude cultural landscapes, high-potential historic sites, and high-potential route segments identified along NSHT Management Corridors from transmission except in approved DFAs. Where development affects NSHT Management Corridors, an analysis must be performed to ensure that it does not substantially interfere with the nature and purposes of the trail, and that mitigation/compensation results in a net benefit to the trail.
  - **Land tenure:** Exchange or disposal must result in net benefit to trail values through acquisition or other compensation. Disposal of lands containing NSHT would not occur.
- Minerals
  - **Locatable minerals**: Locatable Minerals would be treated the same as limited or controlled use areas and a Plan of Operations would be required for greater than casual use as identified in 43 CFR 3809.11.
  - **Saleable minerals**: NSHT Management Corridors would be unavailable for saleable mineral development.
  - **Leasable minerals**: NSHT Management Corridors would be available for leasing with a No Surface Occupancy stipulation. Surface coal mining would not be allowed within the NSHT Management Corridors.
- **Recreation:** Competitive and Commercial SRPs permitted if they do not interfere with the nature and purposes of trail.
- **Cultural Resources:** This CMA would also be applied to nonfederal lands but modified to meet the requirements of state law and the CEC or other state lead agencies. This CMA also varies by alternative.

- Any adverse effects to historic properties resulting from allowable uses would be addressed through the Section 106 process of the NHPA and the implementing regulations at 36 CFR Part 800.

- **Visual Resources Management** – All NSHT Management Corridors would be designated as VRM Class II, except within approved transmission corridors (VRM Class III) and DFAs (VRM Class IV). However, state-of-the-art VRM BMPs for renewable energy would be employed commensurate with the protection of nationally significant scenic resources and cultural landscapes to minimize the level of intrusion and protect trail settings.

- **Mitigation Requirements**
  - If a segment of a National Scenic or Historic Trail or trail under study for possible designation traverses a DFA, it will be subject to mitigation for impacts to trail resources, qualities, values, and associated settings, and primary use or uses, including, but not limited to, and not in priority order: avoidance, the cost of trail relocation, on-site mitigation and off-site mitigation. Compensation can include acquisition or restoration of corridor features and landscapes will be at a minimum of 2:1, and must result in a net benefit to the overall national trail management corridor. Covered Activity development within high potential route segments must not substantially interfere with the nature and purposes of the National Trail.

Laws and Regulations

Similar to the No Action Alternative, existing laws and regulations would reduce certain impacts of Plan implementation. Relevant regulations are presented in the Regulatory Setting in Volume III. The requirements of relevant laws and regulations are summarized for the No Action Alternative in Section IV.8.3.1.1.1.

Mitigation Measures

After implementation of the CMAs and existing laws and regulations, mitigation measures would be applied to further reduce some of the DRECP's adverse impacts. Recommended mitigation measures are detailed for the Preferred Alternative in Section IV.8.3.2.1.1 and summarized below.

Mitigation Measures for Impact CR-1: Plan components could affect historic period built-environment resources. Mitigation CR-1a would protect historic period built-environment resources.

Mitigation Measures for Impact CR-2: Plan components could affect prehistoric and historic period archaeological **resources.** Mitigation CR-2a would protect prehistoric and historic period archaeological resources.

Mitigation Measures for Impact CR-3: Plan components could disturb human remains or cultural items, including funerary objects, sacred objects, and objects of cultural patrimony. Mitigation Measure CR-3a is recommended to protect human remains.

Mitigation Measures for Impact CR-4: Plan components could affect cultural landscapes. Mitigation Measure CR-4a is recommended to protect cultural landscapes.

IV.8.3.3.1.2 Impacts from Reserve Design

Under the Preferred Alternative, cultural resources would be protected from disturbance as a result of establishing conservation areas. Proposed new ACEC and NLCS designations would protect cultural resources. This would occur partly as a result of disturbance caps in these areas designed to conserve and protect the resource values, and renewable energy development would be prohibited in these designations. Development in NLCS lands would be limited to 1% of total authorized disturbance, or to the level allowed by collocated ACEC/wildlife allocations, whichever is more restrictive. These disturbance caps and other management actions would minimize surface disturbance and provide protection for cultural resources.

Under Alternative 1, an estimated 724,357 resources (or 56% of all archaeological and built-environment resources) would occur within Reserve Design Lands (see Appendix R2.8, Table R2.8-15). TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner. Due to their location, resources in these areas would not be subject to impacts from renewable energy development.

IV.8.3.3.2 Impacts of DRECP Land Use Plan Amendment on BLM Land: Alternative 1

This section addresses two components of effects of the BLM LUPA: the streamlined development of renewable energy and transmission on BLM land under LUPA, and the impacts of the amended land use plans themselves.

IV.8.3.3.2.1 Impacts from Renewable Energy and Transmission Development on BLM Land

Under Alternative 1, an estimated 9,536 archaeological and built-environment resources are within DFA footprints on BLM LUPA lands, shown in Table R2.8-16 (Appendix R2.8). Overall, approximately 1.5% of estimated archaeological and built-environment resources

would occur within DFAs in BLM LUPA lands under Alternative 1. TCPs and cultural landscapes are not included in this calculation.

IV.8.3.3.2.2 Impacts of Changes to BLM Land Designations

Proposed ACEC and NLCS designations on BLM lands could provide benefits to cultural resources by establishing disturbance caps in these areas, which conserve and protect resource values, and renewable energy development would be prohibited in these designations. Development on NLCS lands would be limited to 1% of total authorized disturbance, or to the level allowed by collocated ACEC/wildlife allocations, whichever is more restrictive. These disturbance caps and other management actions would minimize surface disturbance and provide protection for cultural resources.

Under Alternative 1, archaeological and built-environment resources expected within BLM land designations on BLM LUPA lands are shown in Table R2.8-17. The majority of the estimated archaeological and built-environment resources (176,813) occur within ACEC lands. In Alternative 1 the National Trail Management Corridor is 0.25 mile on either side of the centerline. As a result, an estimated 2,019 cultural resources would be protected. TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner.

IV.8.3.3.3 Impacts of Natural Community Conservation Plan: Alternative 1

The impacts of the NCCP for Alternative 1 would be the same as those defined in Section IV.8.3.3.1 for the Plan-wide analysis.

IV.8.3.3.4 Impacts of General Conservation Plan

The impacts of the GCP for Alternative 1 would be similar to those defined in Section IV.8.3.3.1 for the Plan-wide analysis, but they would occur on nonfederal lands only.

Under Alternative 1, archaeological and built-environment resources expected within DFA footprints on GCP lands are shown in Table R2.8-18. For the GCP lands under Alternative 1, an estimated 9,360 archaeological and built-environment resources could occur within the DFA footprints. This is 1.75% of the total archaeological and built-environment resources within the GCP lands. Table R2.8-19 has the number of estimated resources within the GCP Reserve Design Lands under Alternative 1. Of the total GCP lands, approximately 13% would be within conservation acres. TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner.

IV.8.3.3.5 Impacts Outside the Plan Area

IV.8.3.3.5.1 Impacts of Transmission Outside the Plan Area

The impacts of Outside the Plan Area transmission on cultural resources would be the same under all alternatives. These impacts are as described for the No Action Alternative in Section IV.8.3.1.5.

IV.8.3.3.5.2 Impacts of BLM LUPA Decisions Outside the Plan Area

Under Alternative 1, archaeological and built-environment resources expected within BLM land designations outside the Plan Area are shown in Table R2.8-20. An estimated 2,715 archaeological and built-environment resources are on proposed NLCS lands, 3,777 on existing and proposed ACEC lands, and 99 within NSHT Management Corridors. The width of these corridors is notable because they vary significantly by alternative. TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner. Impacts of BLM land designations outside the Plan Area to all types of cultural resources would be the same as those described under Section IV.8.3.3.1.2.

IV.8.3.3.6 CEQA Significance Determination for Alternative 1

The CEQA significance determinations for the impacts from Alternative 1 are the same as those described for the Preferred Alternative. However, in comparison to the Preferred Alternative, an estimated 15,548 archaeological and built-environment resources are located in the DFAs, and an estimated 573,972 resources located on 13,781,086 acres of Reserve Design Land. TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner. It is important to note, however, that many portions of the Southern California Desert remain unsurveyed and the identification, evaluation, and treatment of cultural resources would need to be conducted on a project-specific level to ensure that as-yet unidentified cultural resources are taken into account.

CR-1: Plan components could adversely affect historic period built-environment resources. The CEQA significance determinations for the impacts to historic period built-environment resources from Alternative 1 are the same as those described for the No Action Alternative. Implementation of Mitigation Measure CR-1a for historic period built-environment resources could reduce impacts to these resources to less than significant.

CR-2: Plan components could adversely affect prehistoric and historic period archaeological resources. The CEQA significance determinations for the impacts to prehistoric

and historic period archaeological resources from Alternative 1 are the same as those described for the No Action Alternative. Mitigation Measure CR-2a for prehistoric and historic period archaeological resources is recommended; depending on the resource, implementation of these measures could reduce impacts to a less than significant level. However, the majority of the impacts to prehistoric and historic period archaeological resources from renewable energy development would be significant and unavoidable.

CR-3: Plan components could disturb human remains or cultural items, including funerary objects, sacred objects, and objects of cultural patrimony. The CEQA significance determinations for the impacts to human remains or cultural items from Alternative 1 are the same as those described for the No Action Alternative. Mitigation Measure CR-3a is recommended to protect human remains and cultural items. However, even with the implementation of these mitigation measures, the impacts to human remains or cultural items would be significant and unavoidable.

CR-4: Plan components could affect cultural landscapes. The CEQA significance determinations for the impacts to cultural landscapes from Alternative 1 are the same as those described for the No Action Alternative. Mitigation Measure CR-4a for cultural landscapes is recommended; depending on the resource, implementation of these measures could reduce impacts to a less than significant level. However, the majority of the impacts to cultural landscapes from renewable energy development would be significant and unavoidable, even with mitigation.

IV.8.3.3.7 Comparison of Alternative 1 with Preferred Alternative

Chapter IV.27 presents a comparison of all alternatives and the No Action Alternative across all disciplines. This section summarizes the comparison of Alternative 1 with the Preferred Alternative.

IV.8.3.3.7.1 Alternative 1 Compared with Preferred Alternative for Plan-Wide DRECP

Cultural resources vary by alternative in five main ways: (1) the estimated number of resources potentially impacted in DFAs, (2) the estimated number of resources conserved in Reserve Design Lands, (3) the cultural resources CMAs for NLCS lands, (4) the CMAs for National Historic Trails on NLCS lands, and (5) the NHT corridor width and the number of resources conserved within the corridor.

Table IV.8-3
Comparison of Preferred Alternative with the Alternative 1 for Plan-Wide DRECP

	Preferred Alternative	Alternative 1
Number of Resources in DFAs	12,543	18,928
Number of Resources Conserved in Reserve Design Lands	576,735	724,357
Plan-wide CMAs (general)	Reduce impacts cultural resources	Adverse effects will be addressed only through existing laws, regulations, and typical mitigation
Cultural Resources CMAs for NCLS lands only	With exception of research, no adverse effects to historic properties authorized.	Adverse effects will be addressed through Section 106.
National Historic Trails CMAs within NCLS lands	No adverse effects to NHT and NHT/historic properties authorized. All NHT segments assumed to be eligible for NRHP pending evaluation.	Adverse effects will be addressed through Section 106.
NHT Corridor Width and Number of Resources Conserved	5 miles on either side of centerline 28,437	¼ mile on either side of centerline 2,019

The Preferred Alternative would impact fewer cultural resources in the DFA footprints as compared to Alternative 1. In contrast, Alternative 1 would conserve more resources in the Reserve Design Lands but conserve fewer resources in the NHT corridors. In addition, the CMAs for the Preferred Alternative are significantly more protective than for Alternative 1.

Overall, although the number of resources conserved by Alternative 1 is larger, the CMAs in the Preferred Alternative are more protective. Therefore, the Preferred Alternative is more protective to cultural resources than Alternative 1.

Geographic Distinctions

As this is a programmatic analysis, no particularly sensitive cultural resources have been identified in any particular location within the Plan Area. However, different ecoregion sub-areas have different estimated cultural resources densities and some location types are known to be sensitive for cultural resources.

Under the Preferred Alternative, the Silurian Valley would be an SAA. Under Alternative 1, this location would be a BLM conservation allocation. Therefore, Alternative 1 would protect more cultural resources in this location than the Preferred Alternative.

Under the Preferred Alternative, the Hidden Hills area would be a DFA. Under Alternative 1, this location would be a CPA and Variance Lands. Based on previous studies associated with a proposed solar project in this location, the Hidden Hills area is known to be very culturally sensitive because of the presence of a segment of the Salt Song Trail, Route 66, and a National Historic Trail. Under Alternative 1, part of this location might be conserved, therefore Alternative 1 would be more protective of cultural resources than the Preferred Alternative.

Under the Preferred Alternative, the Notch in the Park, area north of Tehachapi, and area east of Twentynine Palms would be FAAs. Under Alternative 1, these locations would be undesignated. In each alternative these locations could either be developed or conserved, therefore there is no difference between the alternatives for cultural resources.

Under both the Preferred Alternative and Alternative 1, the Owens Valley Dry Lake would be a BLM conservation allocation. Dry lakes in this part of California are known to be very culturally sensitive. In addition, the Owens River Valley ecoregion subarea has the highest density of cultural resources of all of the DRECP ecoregion subareas (1.76 resources per acre). Therefore, both alternatives would protect cultural resources in this location equally.

Under the Preferred Alternative, Searles Lake between Ft. Irwin and China Lake would be undesignated. Under Alternative 1, this location would be undesignated. In each alternative this location could either be developed or conserved, therefore there is no difference between the alternatives for cultural resources.

Under the Preferred Alternative, the area along U.S. 395 north of Edwards Air Force Base would be an SAA. Under Alternative 1, this location would be a BLM conservation allocation. Therefore, Alternative 1 would protect more cultural resources in this location than the Preferred Alternative.

IV.8.3.3.7.2 Alternative 1 Compared with Preferred Alternative for the BLM Land Use Plan Amendment

In this section alternatives are distinguished through the comparison of the number of estimated cultural resources that would be conserved in BLM land designation (Tables R2.8-10 and R2.8-17) and the resources in BLM land designations that are also in DFAs and therefore might be impacted by development (see Tables R2.8-9 and R2.8-16).

Table IV.8-4
Comparison of Preferred Alternative with Alternative 1 for the BLM Land Use Plan Amendment

Land Classification	Preferred Alternative Estimated # of Resources	Alternative 1 Estimated # of Resources
SRMA	68,801	69,315
NLCS	176,810	63,863
Existing and Proposed ACEC	84,542	176,813
Wildlife Allocation	742	19,393
LWCs	11,237	0
Trail Management Corridors	28,437	2,019
BLM LUPA Land in DFA Footprint	6,855	9,536

While the number of resources conserved by each type of BLM land designation varies, cultural resources CMAs apply to NLCS, ACECs and Trail Management Corridors and so the importance of those designations are emphasized here. Overall, a larger number of resources would be protected more effectively by the Preferred Alternative as compared to Alternative 1.

IV.8.3.3.7.3 Alternative 1 Compared with Preferred Alternative for NCCP

The impacts of the NCCP for Alternative 1 are the same as those defined in Section IV.8.3.3.1 for the Plan-wide analysis. As a result, the comparison of Alternative 1 with the Preferred Alternative for the NCCP is the same as described for Plan-wide DRECP.

IV.8.3.3.7.4 Alternative 1 Compared with Preferred Alternative for the GCP

In this section alternatives are distinguished through the comparison of the number of estimated cultural resources on GCP Lands that might be impacted by development (Tables R2.8-11 and R2.8-18) and the estimated number of resources that would be conserved (Tables R2.8-12 and R2.8-19).

Table IV.8-5
Comparison of Preferred Alternative with Alternative 1 for the GCP

	Preferred Alternative Estimated # of Resources	Alternative 1 Estimated # of Resources
GCP DFAs	5,662	9,360
Conserved	69,920	69,919

Overall, while both alternatives conserve the same number of resources, Alternative 1 would potentially impact more cultural resources than the Preferred Alternative. Therefore, the Preferred Alternative is more protective of cultural resources than Alternative 1.

IV.8.3.4 Alternative 2

IV.8.3.4.1 Plan-Wide Impacts of Implementing the DRECP: Alternative 2

IV.8.3.4.1.1 Plan-Wide Impacts and Mitigation Measures from Renewable Energy and Transmission Development

Impact Assessment

Renewable energy development activities covered by the DRECP would be confined to DFAs. Under Alternative 2, an estimated 19,925 archaeological and built-environment resources would occur within DFAs (see Table R2.8-21 in Appendix R2.8).The density of these resources by ecoregion is shown in Figure IV.8-4. TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner. Each impact is described below.

Impact CR-1: Plan components could affect historic period built-environment resources.

As described in Section IV.8.2, all phases of renewable energy development under all of the alternatives have the potential to impact historic period built-environment resources.

Impact CR-2: Plan components could affect prehistoric and historic period archaeological resources.

As described in Section IV.8.2, all phases of renewable energy development under all of the alternatives have the potential to impact prehistoric and historic period archaeological resources.

Impact CR-3: Plan components could disturb human remains or cultural items, including funerary objects, sacred objects, and objects of cultural patrimony.

As described in Section IV.8.2, disturbance of human remains or cultural items could result from construction-related ground-disturbance activities. Ground-disturbing activities such as grading, vegetation clearing, and foundation excavations could lead to the unintentional discovery of burials and cultural items, which are typically unmarked.

Impact CR-4: Plan components could affect cultural landscapes.

As described in more detail in Section IV.8.2, all phases of renewable energy development under all of the alternatives have the potential to impact cultural landscapes.

Impacts in Study Area Lands

Study Area Lands refer to three categories of lands: Future Assessment Areas (FAAs), Special Analysis Areas (SAAs) and DRECP Variance Lands. Development in any of the Study Area Lands could adversely impact resources important to tribes and other communities.

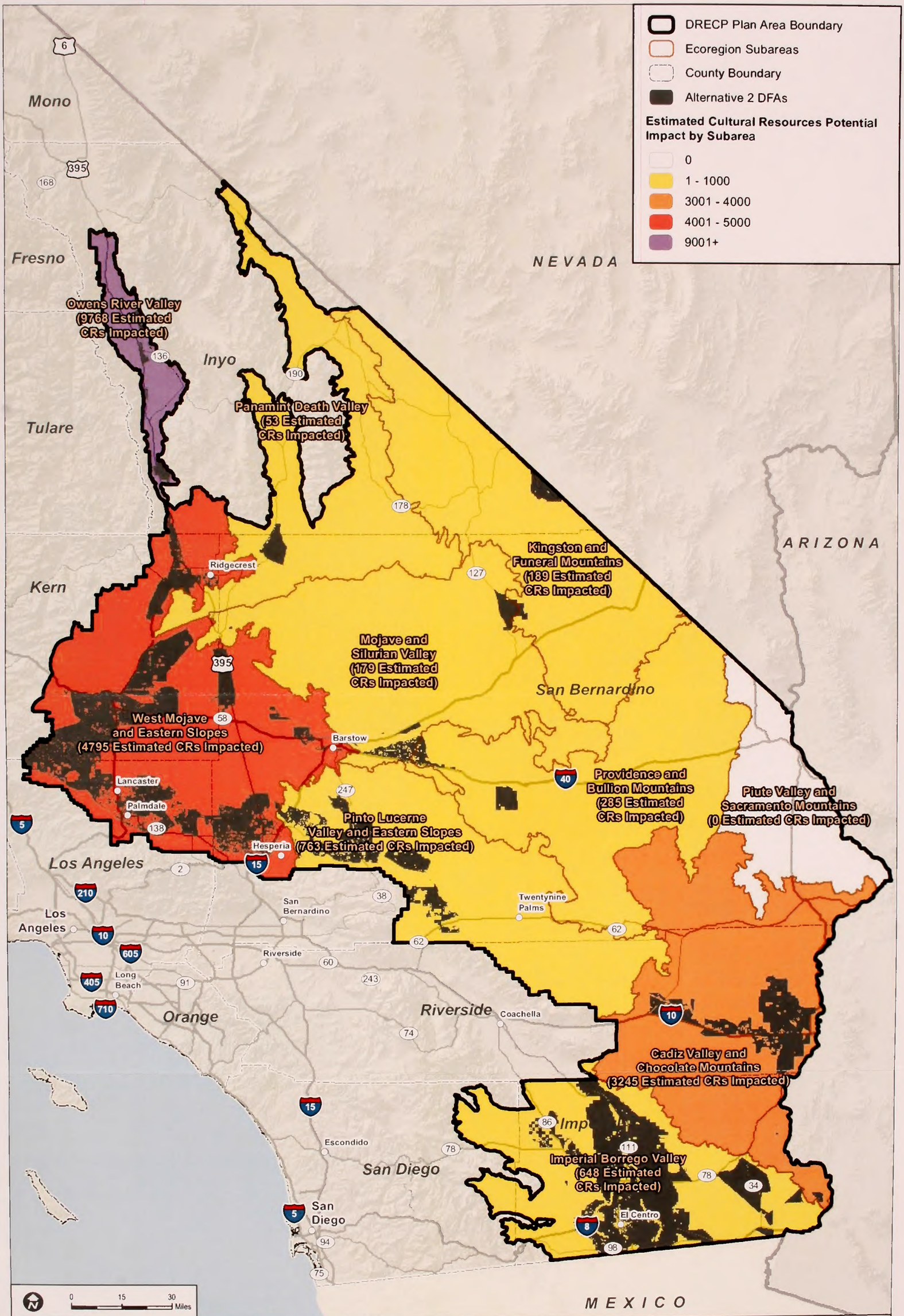
Future Assessment Areas. In Alternative 2 109,000 acres are identified as FAAs (Table IV.1-2). This area is predicted to contain a total of 2,180 archaeological and built-environment resources. TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner.

Special Analysis Areas (SAAs). In Alternative 2 the two SAAs defined in the Preferred Alternative, would be DFAs. These 42,000 acres (Table IV.1-3) are predicted to contain a total of 840 archaeological and built-environment resources. TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner.

DRECP Variance Lands. Under Alternative 2 Variance Lands identified in the Preferred Alternative would be undesignated areas except the lands west of Parker and south of Big Maria Mountain Wilderness Areas, which would become NLCS conservation areas (Table IV.1-3).

Impact Reduction Strategies and Mitigation

The implementation of the Plan would result in conservation of some desert lands as well as the development of renewable energy generation and transmission facilities on other lands. The impacts of the renewable energy development covered by the Plan would be lessened in several ways. First, the Plan incorporates CMAs for each alternative, including specific biological reserve design components and LUPA components. Also, the implementation of existing laws, orders, regulations, and standards would reduce the impacts of project development. If significant impacts would still result after implementation of CMAs and compliance with applicable laws and regulations, then specific mitigation measures are recommended in this section.



Sources: ESRI (2014); CEC (2013); BLM (2013); CDFW (2013); USFWS (2013); RECON 2014

FIGURE IV.8-4

Estimated Number of Cultural Resources within DFAs by Ecoregion Subarea – Alternative 2

Draft DRECP and EIR/EIS

August 2014

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Conservation and Management Actions

The conservation strategy for Alternative 2 (see Section II.3.1.1) defines specific actions that would reduce the impacts of this alternative. The conservation strategy includes definition of the reserve design and specific CMAs for the Preferred Alternative. While the CMAs were developed for BLM lands only, this analysis assumes that all CMAs would be applied also to nonfederal lands. As such, the details of these CMAs would be modified to meet the requirements of state law, the CEC or other appropriate state lead agencies. However, those modifications are not presented here. It is important to note that cultural resources CMAs and National Scenic and Historic Trails CMAs associated with National Landscape Conservation System Lands and Areas of Critical Environmental Concern vary significantly by alternative.

Except for the following CMAs specific to Alternative 2 and cultural resources, all CMAs are the same as the Preferred Alternative.

Planning Area–Wide National Conservation Land Management Direction

- This CMA would also be applied to nonfederal lands but modified to meet the requirements of state law and the CEC or other state lead agencies. This CMA also varies significantly by alternative.
- **Cultural Resources** -No allowable uses that result in adverse effects to historic properties as defined under Section 106 process of the NHPA and the implementing regulations at 36 CFR Part 800 will be authorized.

Development Focus Areas

- **Soil, Water, and Water-Dependent Resources.** Would require that disturbance of sensitive soils be limited to 20% of the sensitive soil areas within a proposed project footprint. In addition, this would limit disturbance of desert pavement so that no more than 5% of the desert pavement within a proposed project footprint shall be disturbed for construction.

National Scenic and Historic Trails (NSHT)

National Landscape Conservation System Lands.

- **Management Corridor Width (see maps).** Establish a trail management corridor width, generally 10 miles from the centerline. It is important to note these widths vary by alternative, resulting in varying amounts of conserved land.

- **Management of NSHT Management Corridors.** Manage national trails as components of BLM's National Landscape Conservation System. Where NSHT lands overlap NLCS lands, the more protective CMAs or land use allocations apply.
- **Lands and Realty**
  - **Rights-of-Way**
    - **Site authorizations**: NSHT Management Corridors would be exclusion areas.
    - **Linear ROWs:** NSHT Management Corridors would be exclusion areas except in designated transmission corridors. Where development in transmission corridors affects NSHT Management Corridors, an analysis must be performed to ensure that it does not substantially interfere with the nature and purposes of the trail, and that mitigation/compensation results in a net benefit to the trail.
    - **Renewable Energy ROW**: Exclude cultural landscapes, high-potential historic sites, and high-potential route segments identified along NSHT Management Corridors from transmission except in approved DFAs. Where development affects NSHT Management Corridors, an analysis must be performed to ensure that it does not substantially interfere with the nature and purposes of the trail, and that mitigation/compensation results in a net benefit to the trail.
  - **Land tenure:** Exchange, purchase, or donation of lands within NSHT Management Corridors would be allowed; disposal of land within NSHT Management Corridors would not be permitted.
- **Minerals**
  - **Locatable Minerals**: BLM would propose NSHT Management Corridors for withdrawal from mineral entry. Withdrawals would be subject to valid existing rights.
  - **Saleable Minerals**: NSHT Management Corridors would be unavailable for saleable mineral development.
  - **Leasable Minerals**: NSHT Management Corridors would be unavailable for mineral leasing.
- **Recreation:** Competitive Special Recreation Permits would not be permitted. Commercial Special Recreation Permits would be limited to those uses that provide for enjoyment and appreciation of NSHT values, resources, qualities, and associated settings, and the primary use or uses.
- **Cultural Resources:** No allowable uses that result in adverse effects to historic properties as defined under Section 106 of NHPA and the implementing regulations at 36 CFR Part 800 will be authorized.

- **Visual Resources Management:** All NSHT Management Corridors would be designated as VRM Class II, except within approved transmission corridors (VRM Class III) and DFAs (VRM Class IV). However, state of the art VRM BMPs for renewable energy would be employed commensurate with the protection of nationally significant scenic resources and cultural landscapes to minimize the level of intrusion and protect trail settings.
- **Mitigation Requirements**
  - If a segment of an NSHT or Historic Trail or trail under study for possible designation traverses a DFA, it would be subject to mitigation for impacts to trail resources, qualities, values, and associated settings, and the primary use or uses, including, but not limited to, and not in priority order: avoidance, the cost of trail relocation, on-site mitigation, and off-site mitigation. Compensation can include acquisition or restoration of corridor features and landscapes at a minimum of 2:1, and must result in a net benefit to the overall trail corridor. Development of Covered Activities in high-potential route segments must not substantially interfere with the nature and purposes of the NSHT.

Laws and Regulations

Similar to the No Action Alternative, existing laws and regulations would reduce certain impacts of Plan implementation. Relevant regulations are presented in the Regulatory Setting in Volume III. The requirements of relevant laws and regulations are summarized for the No Action Alternative in Section IV.8.3.1.1.1.

Mitigation Measures

After implementation of the CMAs and existing laws and regulations, mitigation measures will be applied to further reduce some of the DRECP's adverse impacts. Recommended mitigation measures are detailed for the Preferred Alternative in Section IV.8.3.2.1.1, and summarized below.

Mitigation Measures for Impact CR-1: Plan components could affect historic period built-environment resources. Mitigation CR-1a would reduce impacts on historic period built-environment resources.

Mitigation Measures for Impact CR-2: Plan components could affect prehistoric and historic period archaeological resources. Mitigation CR-2a would reduce impacts on prehistoric and historic period archaeological resources.

Mitigation Measures for Impact CR-3: Plan components could disturb human remains or cultural items, including funerary objects, sacred objects, and objects of

cultural patrimony. Mitigation Measure CR-3a is recommended to reduce impacts on human remains.

Mitigation Measures for Impact CR-4: Plan components could affect cultural landscapes. Mitigation Measure CR-4a is recommended to reduce impacts on cultural landscapes.

IV.8.3.4.1.2 Impacts from Reserve Design

Under Alternative 2, cultural resources would be protected from disturbance by establishing conservation areas. Proposed new ACEC and NLCS designations would reduce impacts on cultural resources. This would occur partly as a result of disturbance caps designed to conserve and protect the resource values, and renewable energy development would be prohibited in these designations. Development in NLCS lands would be limited to 1% of total authorized disturbance, or to the level allowed by collocated ACEC/wildlife allocations, whichever is more restrictive. These disturbance caps and other management actions would minimize surface disturbance and provide protection for cultural resources.

Under Alternative 2, an estimated 750,227 resources (58% of all estimated archaeological and built-environment resources) would occur within Reserve Design Lands (see Appendix R2.8, Table R2.8-22). TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner. Due to their location within the conservation reserve system, resources in these areas would not be subject to impacts from renewable energy development.

IV.8.3.4.2 Impacts of DRECP Land Use Plan Amendment on BLM Land: Alternative 2

This section addresses two components of effects of the BLM LUPA: the streamlined development of renewable energy and transmission on BLM land under LUPA, and the impacts of the amended land use plans themselves.

IV.8.3.4.2.1 Impacts from Renewable Energy and Transmission Development on BLM Land

Under Alternative 2, an estimated 7,815 archaeological and built-environment resources are within DFA footprints on the BLM LUPA lands as shown in Table R2.8-23 (Appendix R2.8). Overall, approximately 0.6% of estimated archaeological and built-environment resources occur within DFAs in BLM LUPA lands under Alternative 2. TCPs and cultural landscapes are not included in this calculation.

IV.8.3.4.2.2 Impacts of Changes to BLM Land Designations

Proposed ACEC and NLCS designations on BLM lands could provide benefits to cultural resources by establishing disturbance caps in these areas, which are designed to conserve and protect resource values, and renewable energy development would be prohibited in these designations. Development on NLCS lands would be limited to 1% of total authorized disturbance, or to the level allowed by collocated ACEC/wildlife allocations, whichever is more restrictive. These disturbance caps and other management actions would minimize surface disturbance and provide protection for cultural resources.

Under Alternative 2, cultural resources found within BLM land designations on BLM LUPA lands are shown in Table R2.8-24. The majority of the estimated archaeological and built-environment resources (225,006) occur within NLCS lands, with 42,307 on existing and proposed ACEC lands. In Alternative 2, the National Trail Management Corridor is 10 miles on either side of the centerline. As a result, an estimated 215,632 cultural resources would be protected. TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner.

IV.8.3.4.3 Impacts of Natural Community Conservation Plan: Alternative 2

The impacts of the NCCP for Alternative 2 would be the same as those defined in Section IV.8.3.4.1 for the Plan-wide analysis.

IV.8.3.4.4 Impacts of General Conservation Plan

The impacts of the GCP for Alternative 2 would be similar to those defined in Section IV.8.3.4.1 for the Plan-wide analysis, but they would occur on nonfederal lands only.

Under Alternative 2, archaeological and built-environment resources expected within DFA footprints on GCP lands are shown in Table R2.8-25. For the GCP lands under Alternative 2, an estimated 13,135 archaeological and built-environment resources could occur within the technology footprints in the DFA footprints. This is 2.4% of the total resources within the GCP lands. Under Alternative 2, resources found within GCP Reserve Design Lands are shown in Table R2.8-26. Of the total GCP lands, approximately 28% would be within conservation acres.

IV.8.3.4.5 Impacts Outside the Plan Area

IV.8.3.4.5.1 Impacts of Transmission Outside the Plan Area

The impacts of transmission outside the Plan Area on cultural resources would be the same under all alternatives. These impacts are as described for the No Action Alternative in Section IV.8.3.1.5.

IV.8.3.4.5.2 Impacts of BLM LUPA Decisions Outside the Plan Area

Under Alternative 2, archaeological and built-environment resources expected within BLM land designations outside the Plan Area are shown in Table R2.8-27. There are 21,338archaeological and built-environment resources on BLM LUPA lands outside the Plan Area. Of those resources, 8,522 cultural resources occur on proposed NLCS lands with 5,381 resources on existing and proposed ACEC lands. There are 3,763 resources within NSHT Management Corridors. TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner. Impacts of BLM land designations outside the Plan Area to cultural resources would be the same as those described under Section IV.8.3.4.1.2.

IV.8.3.4.6 CEQA Significance Determination for Alternative 2

The CEQA significance determinations for the impacts from Alternative 2 are the same as those described for the Preferred Alternative. However, in comparison to the Preferred Alternative, an estimated 19,925 archaeological and built-environment resources are located in the DFAs, and an estimated 776,113 resources are located on 13,871,383 acres of Reserve Design Land. TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner. It is important to note, however, that many portions of the Southern California Desert remain unsurveyed and the identification, evaluation, and treatment of cultural resources would need to be conducted on a project-specific level to ensure that as-yet unidentified cultural resources are taken into account.

CR-1: Plan components could adversely affect historic period built-environment resources. CEQA significance determinations for impacts to historic period built-environment resources from Alternative 2 are the same as those described for the No Action Alternative. Implementation of Mitigation Measure CR-1a for historic period built-environment resources could reduce impacts to these resources to less than significant.

CR-2: Plan components could adversely affect prehistoric and historic period archaeological resources. The CEQA significance determinations for the impacts to prehistoric and historic period archaeological resources from Alternative 2 are the same as those described for the No Action Alternative. Mitigation Measure CR-2a for prehistoric and historic period archaeological resources is recommended; depending on the resource, implementation of these measures could reduce impacts to a less than significant level. However, the majority of the impacts to prehistoric and historic period archaeological resources from renewable energy development would be significant and unavoidable.

CR-3: Plan components could disturb human remains or cultural items, including funerary objects, sacred objects, and objects of cultural patrimony. The CEQA significance determinations for the impacts to human remains or cultural items from Alternative 2 are the same as those described for the No Action Alternative. Mitigation Measure CR-3a is recommended to protect human remains and cultural items. However, even with the implementation of these mitigation measures the impacts to human remains or cultural items would be significant and unavoidable.

CR-4: Plan components could affect cultural landscapes. The CEQA significance determinations for the impacts to cultural landscapes from Alternative 2 are the same as those described for the No Action Alternative. Mitigation Measure CR-4a for cultural landscapes is recommended; depending on the resource, implementation of these measures could reduce impacts to a less than significant level. However, the majority of the impacts to cultural landscapes from renewable energy development would be significant and unavoidable, even with mitigation.

IV.8.3.4.7 Comparison of Alternative 2 with Preferred Alternative

Chapter IV.27 presents a comparison of all action alternatives and the No Action Alternative across all disciplines. This section summarizes the comparison of Alternative 2 with the Preferred Alternative.

IV.8.3.4.7.1 Alternative 2 Compared with Preferred Alternative for Plan-Wide DRECP

Cultural resources vary by alternative in five main ways: (1) the estimated number of resources potentially impacted in DFAs, (2) the estimated number of resources conserved in Reserve Design Lands, (3) the cultural resources CMAs for NCLS lands, (4) the CMAs for National Historic Trails on NCLS lands, and (5) the NHT corridor width and the number of resources conserved within the corridor.

Table IV.8-6
Comparison of Preferred Alternative with Alternative 2 for Plan-Wide DRECP

	Preferred Alternative	Alternative 2
Number of Resources in DFAs	12,543	19,925
Number of Resources Conserved in Reserve Design Lands	576,735	750,227
Plan-wide CMAs (general)	Reduce impacts cultural resources	Adverse effects addressed only through existing laws, regulations, and typical mitigation
Cultural Resources CMAs for NCLS lands only	With exception of research, no adverse effects to historic properties authorized.	No adverse effects to historic properties authorized.
National Historic Trails CMAs within NCLS land	No adverse effects to NHT and NHT/historic properties authorized. All NHT segments assumed to be eligible for NRHP pending evaluation.	No adverse effects to historic properties authorized.
NHT Corridor Width and Number of Resources Conserved	5 miles on either side of centerline 28,437	10 miles on either side of centerline 215,632

The Preferred Alternative would impact fewer cultural resources in the DFA footprints as compared to Alternative 2. However Alternative 2 would conserve more resources in the Reserve Design Lands and significantly more resources in the NHT corridors. In addition, the CMAs for Alternative 2 are more protective than for the Preferred Alternative.

Overall, Alternative 2 is more protective to cultural resources than the Preferred Alternative and is the most protective of all of the alternatives.

Geographic Distinctions

As this is a programmatic analysis, no particularly sensitive cultural resources have been identified in any particular location within the Plan Area. However, different Ecoregion Subareas have different estimated cultural resources densities and some location types are known to be sensitive for cultural resources.

Under the Preferred Alternative, the Silurian Valley would be an SAA. Under Alternative 2, this location would be a DFA. Therefore, the Preferred Alternative could potentially protect more cultural resources than Alternative 2 because this location could become a conservation allocation.

Under both the Preferred Alternative and Alternative 2, the Hidden Hills area would be a DFA. Based on previous studies associated with a proposed solar project in this location, the Hidden Hills area is known to be very culturally sensitive because of the presence of a segment of the Salt Song Trail, Route 66, and a National Historic Trail. Therefore, both alternatives could have similar potential negative impacts to cultural resources.

Under the Preferred Alternative, the Notch in the Park and area north of Tehachapi would be FAAs. Under Alternative 2, these locations would be undesignated. In each alternative this location could either be developed or conserved, therefore there is no difference between the alternatives for cultural resources.

Under the Preferred Alternative, the area east of Twentynine Palms would be an FAA. Under Alternative 2, this location would be a BLM conservation allocation. Therefore, Alternative 2 would be more likely to conserve cultural resources than the Preferred Alternative.

Under both the Preferred Alternative and Alternative 2 the Owens Valley Dry Lake would be a BLM conservation allocation. Dry lakes in this part of California are known to be very culturally sensitive. In addition, the Owens River Valley ecoregion subarea has the highest density of cultural resources of all of the DRECP ecoregion subareas (1.76 resources per acre). Therefore both alternatives would protect cultural resources in this location equally.

Under the Preferred Alternative, Searles Lake between Ft. Irwin and China Lake would be undesignated. Under Alternative 2, this location would be a DFA. Therefore, the Preferred Alternative would be more likely to preserve cultural resources in this location than Alternative 2.

Under the Preferred Alternative, the area along U.S. 395 north of Edwards Air Force Base would be an SAA. Under Alternative 2, this location would be a DFA. Therefore, the Preferred Alternative would be more likely to preserve cultural resources in this location than Alternative 2.

IV.8.3.4.7.2 Alternative 2 Compared with Preferred Alternative for the BLM Land Use Plan Amendment

In this section alternatives are distinguished through the comparison of the number of estimated cultural resources which would be conserved in BLM land designation (Tables R2.8-10 and R2.8-24) and the resources in BLM land designations that are also in DFAs and therefore might be impacted by development (Tables R2.8-9 and R2.8-16).

Table IV.8-7
Comparison of Preferred Alternative With
Alternative 2 for the BLM Land Use Plan Amendment

	Preferred Alternative Estimated # of Resources	Alternative 2 Estimated # of Resources
SRMA	68,801	66,058
NLCS	176,810	225,006
Existing and Proposed ACEC	84,542	42,307
Wildlife Allocation	742	30
LWCs	11,237	25,435
Trail Management Corridors	28,437	215,632
BLM LUPA Land in DFA Footprint	6,855	7,815

While the number of resources conserved by each type of BLM land designation varies, cultural resources CMAs apply to NLCS, ACECs and Trail Management Corridors and so the importance of those designations are emphasized here. Overall, a larger number of resources would be protected more effectively by Alternative 2 as compared to the Preferred Alternative.

IV.8.3.4.7.3 Alternative 2 Compared with Preferred Alternative for NCCP

The impacts of the NCCP for Alternative 2 are the same as those defined in Section IV.8.3.4.1 for the Plan-wide analysis. As a result, the comparison of Alternative 2 with the Preferred Alternative for the NCCP is the same as described for Plan-wide DRECP.

IV.8.3.4.7.4 Alternative 2 Compared with Preferred Alternative for the GCP

In this section alternatives are distinguished through the comparison of the number of estimated cultural resources on GCP lands that might be impacted by development (Tables R2.8-11 and R2.8-18) and the estimated number of resources that would be conserved (Tables R2.8-12 and R2.8-19).

Table IV.8-8
Comparison of Preferred Alternative with Alternative 2 for the GCP

	Preferred Alternative Estimated # of Resources	Alternative 2 Estimated # of Resources
GCP DFAs	5,662	13,135
Conserved	69,920	150,595

Overall, Alternative 2 potentially impacts more cultural resources, but it also conserves significantly more resources than the Preferred Alternative. Therefore, Alternative 2 is more protective of cultural resources than the Preferred Alternative.

IV.8.3.5 Alternative 3

IV.8.3.5.1 Plan-Wide Impacts of Implementing the DRECP: Alternative 3

IV.8.3.5.1.1 Plan-Wide Impacts and Mitigation Measures from Renewable Energy and Transmission Development

Impact Assessment

Renewable energy development activities covered by the DRECP would be confined to DFAs. Under Alternative 3, an estimated 13,265 archaeological and built-environment resources would occur within DFAs (see Appendix R2.8, Table R2.8-28). The density of these resources by ecoregion is shown in Figure IV.8-5. TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner. Each impact is described below.

Impact CR-1: Plan components could affect historic period built-environment resources.

As described in Section IV.8.2, all phases of renewable energy development under all of the alternatives have the potential to impact historic period built-environment resources.

Impact CR-2: Plan components could affect prehistoric and historic period archaeological resources.

As described in Section IV.8.2, all phases of renewable energy development under all of the alternatives have the potential to impact prehistoric and historic period archaeological resources.

Impact CR-3: Plan components could disturb human remains or cultural items, including funerary objects, sacred objects, and objects of cultural patrimony.

As described in Section IV.8.2, disturbance of human remains or cultural items could result from construction-related ground-disturbance activities. Ground-disturbing activities such as grading, vegetation clearing, and foundation excavations could lead to the unintentional discovery of burials and cultural items, which are typically unmarked.

Impact CR-4: Plan components could affect cultural landscapes.

As described in more detail in Section IV.8.2, all phases of renewable energy development under all of the alternatives have the potential to impact cultural landscapes.

Impacts in Study Area Lands

Study Area Lands refer to three categories of lands: Future Assessment Areas (FAAs), Special Analysis Areas (SAAs) and DRECP Variance Lands. Development in any of the Study Area Lands could adversely impact resources important to tribes and other communities.

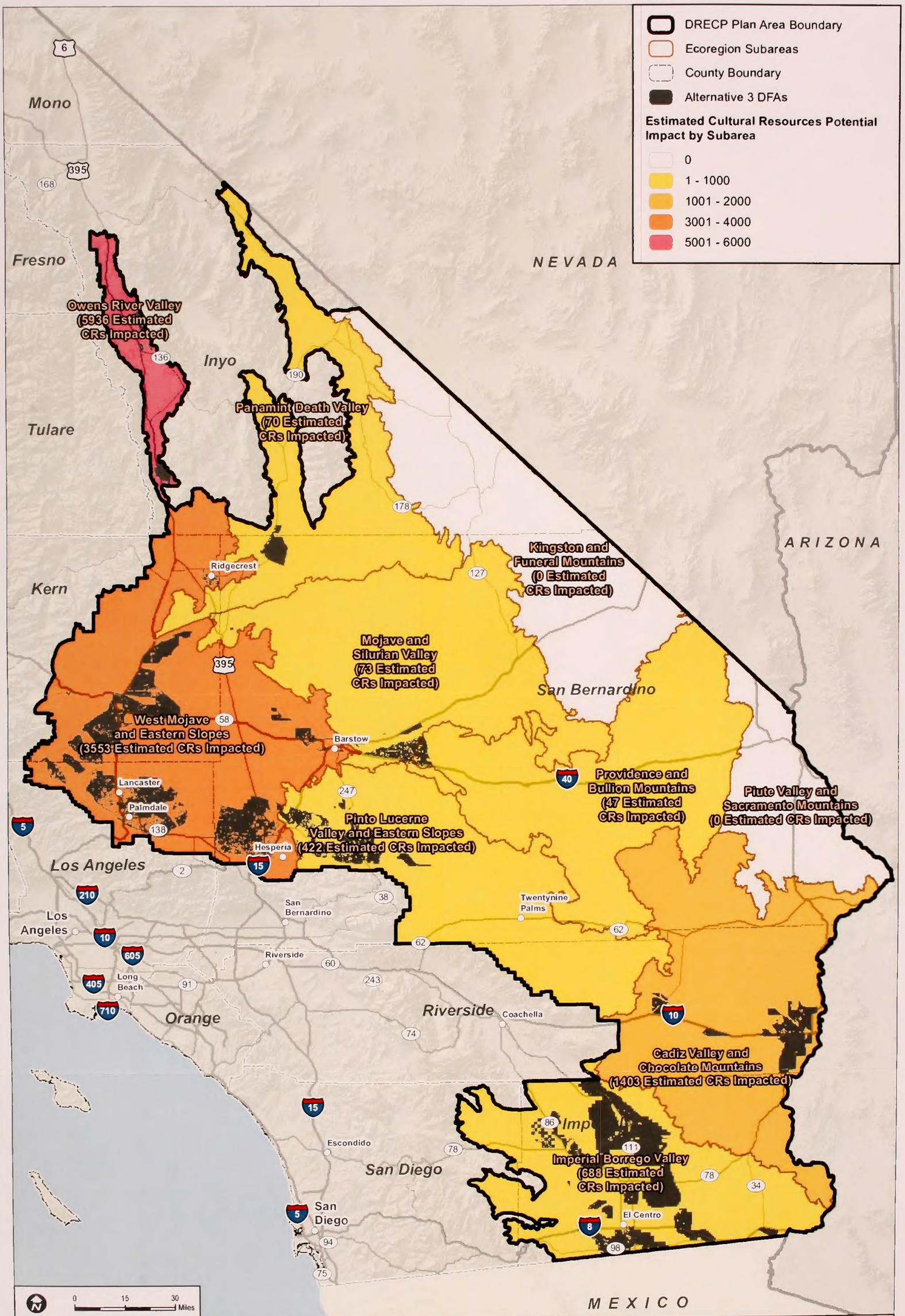
Future Assessment Areas. In Alternative 3 11,000 acres are identified as FAAs (Table IV.1-2). This area is predicted to contain 220 archaeological and built-environment resources. TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner.

Special Analysis Areas (SAAs). In Alternative 3 the two SAAs defined in the Preferred Alternative, would be conservation lands. These 42,000 acres (Table IV.1-3) are predicted to contain 840 archaeological and built-environment resources. TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner.

DRECP Variance Lands. Under Alternative 3 Variance Lands identified in the Preferred Alternative would be undesignated areas (Table IV.1-3).

Impact Reduction Strategies and Mitigation

The implementation of the Plan would result in conservation of some desert lands as well as the development of renewable energy generation and transmission facilities on other lands. The impacts of the renewable energy development covered by the Plan would be lessened in several ways. First, the Plan incorporates CMAs for each alternative, including specific biological reserve design components and LUPA components. Also, the implementation of existing laws, orders, regulations, and standards would reduce the impacts of project development. If significant impacts would still result after implementation of CMAs and compliance with applicable laws and regulations, then specific mitigation measures are recommended in this section.



Sources: ESRI (2014); CEC (2013); BLM (2013); CDFW (2013); USFWS (2013); RECON 2014

FIGURE IV.8-5

Estimated Number of Cultural Resources within DFAs by Ecoregion Subarea – Alternative 3

Draft DRECP and EIR/EIS

August 2014

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Conservation and Management Actions

The conservation strategy for Alternative 3 (see Section II.3.1.1) defines specific actions that would reduce the impacts of this alternative. The conservation strategy includes definition of the reserve design and specific CMAs that apply to all alternatives and some that are specific to each alternative. While the CMAs were developed for BLM lands only, this analysis assumes that all CMAs would be applied also to nonfederal lands. As such, the details of these CMAs would be modified to meet the requirements of state law, the CEC or other appropriate state lead agencies. However, those modifications are not presented here. It is important to note that cultural resources CMAs and National Scenic and Historic Trails CMAs associated with National Landscape Conservation System Lands and Areas of Critical Environmental Concern vary significantly by alternative.

Except for the following CMAs specific to Alternative 3 relating to cultural resources, all CMAs are the same as the Preferred Alternative.

Planning Area–Wide National Conservation Land Management Direction

This CMA would also be applied to nonfederal lands but modified to meet the requirements of state law and the CEC or other state lead agencies. This CMA also varies significantly by alternative.

Cultural Resources – Any adverse effect to historic properties resulting from allowable uses will be addressed through the Section 106 process of the NHPA and the implementing regulations at 36 CFR Part 800. Resolution of adverse effects will in part be addressed via alternative mitigation that includes regional synthesis and interpretation of existing archaeological data in addition to mitigation measures determined through the Section 106 government-to-government consultation process.

Development Focus Areas

- **Soil, Water, and Water-Dependent Resources.** Would require that disturbance of sensitive soils be limited to 1% of the sensitive soil areas within a proposed project footprint. In addition, this would limit disturbance of desert pavement so that no more than 5% of the desert pavement within a proposed project footprint shall be disturbed for construction.

National Trails

- **Management Corridor Width (see also maps)**: Establish a National Trail Management Corridor, width generally 5 miles from centerline for the Pacific Crest Trail, and for high potential route segments and other known historically significant

segments on the National Historic trails. Additional segments of the NHTs may be added to the management corridor as information becomes available on their qualifications as high potential route segments. It is important to note these widths vary by alternative, resulting in varying amounts of conserved land.

- **Management of Trail Corridors:** Manage National Trails as components of BLM's National Landscape Conservation System. Where National Trails overlap other National Conservation Lands, the more protective CMAs or land use allocations will apply.
- **Lands and Realty**
  - **Rights-of-Way**
    - **Site authorizations**: NSHT Management Corridors would be exclusion areas.
    - **Linear ROWs:** NSHT Management Corridors would be exclusion areas, except in designated transmission corridors. Exclude cultural landscapes, high-potential historic sites, and high-potential route segments identified along historic trails corridors from transmission except in approved transmission corridors. Where development affects NSHT management Corridors, an analysis must be performed to ensure that it does not substantially interfere with the nature and purposes of the trail and that mitigation/compensation results in a net benefit to the trail.
    - **Renewable Energy ROWs:** Exclude cultural landscapes, high-potential historic sites, and high-potential route segments identified along historic trails corridors from transmission except in approved DFAs. Where development affects trail management corridors, an analysis must be performed to ensure that the development does not substantially interfere with the nature and purposes of the trail, and that mitigation/compensation results in a net benefit to the trail.
  - **Land tenure:**
    - Exchange, purchase, or donation of lands in NSHT Management Corridors would be allowed. Disposal of lands in NSHT Management Corridors would not be permitted.
- **Minerals**
  - **Locatable Minerals:** BLM would propose NSHT Management Corridors for withdrawal from mineral entry. Withdrawals would be subject to valid existing rights.
  - **Saleable Minerals**: Saleable mineral development in NSHT Management Corridors would be limited to use on local public works projects. Mitigation/compensation must result in net benefit to NSHT values.

- **Leasable Minerals**: NSHT Management Corridors would be unsuitable for all leasing.

- **Recreation:** Competitive Special Recreation Permits would not be permitted. Commercial Special Recreation Permits would be limited to those uses that provide for enjoyment/appreciation of NSHT values, qualities, values, and associated settings and the primary use or uses.
- **Cultural Resources:** This CMA would also be applied to nonfederal lands but modified to meet the requirements of state law and the CEC or other state lead agencies. This CMA also varies by alternative.
  - Any adverse effects to historic properties resulting from allowable uses would be addressed through the Section 106 process of the NHPA and the implementing regulations at 36 CFR Part 800.

Laws and Regulations

Similar to the No Action Alternative, existing laws and regulations would reduce certain impacts of Plan implementation. Relevant regulations are presented in the Regulatory Setting in Volume III. The requirements of relevant laws and regulations are summarized for the No Action Alternative in Section IV.8.3.1.1.1.

Mitigation Measures

After implementation of the CMAs and existing laws and regulations, mitigation measures would be applied to further reduce some of the DRECP's adverse impacts. Recommended mitigation measures are detailed for the Preferred Alternative in Section IV.8.3.2.1.1, and summarized below.

Mitigation Measures for Impact CR-1: Plan components could affect historic period built-environment resources. Mitigation CR-1a would protect historic period built-environment resources.

Mitigation Measures for Impact CR-2: Plan components could affect prehistoric and historic period archaeological **resources.** Mitigation CR-2a would protect prehistoric and historic period archaeological resources.

Mitigation Measures for Impact CR-3: Plan components could disturb human remains or cultural items, including funerary objects, sacred objects, and objects of cultural patrimony. Mitigation Measure CR-3a is recommended to protect human remains.

Mitigation Measures for Impact CR-4: Plan components could affect cultural landscapes. Mitigation Measure CR-4a is recommended to protect cultural landscapes.

IV.8.3.5.1.2 Impacts from Reserve Design

Under Alternative 3, cultural resources would be protected from disturbance by establishing conservation areas. Proposed new ACEC and NLCS designations would protect cultural resources. This would occur partly from disturbance caps designed to conserve and protect the resource values, and renewable energy development would be prohibited in these designations. Development in NLCS lands would be limited to 1% of total authorized disturbance, or to the level allowed by collocated ACEC/wildlife allocations, whichever is more restrictive. These disturbance caps and other management actions would minimize surface disturbance and thereby provide protection for cultural resources.

Under Alternative 3, an estimated 737,263 resources (or 57% of all known archaeological and built-environment resources) would occur within Reserve Design Lands (see Table R2.8-29 in Appendix R2.8). TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner. Due to their location within the conservation reserve system, resources in these areas would not be subject to impacts from renewable energy development.

IV.8.3.5.2 Impacts of DRECP Land Use Plan Amendment on BLM Land: Alternative 3

This section addresses two components of effects of the BLM LUPA: the streamlined development of renewable energy and transmission on BLM land under the LUPA, and the impacts of the amended land use plans themselves.

IV.8.3.5.2.1 Impacts from Renewable Energy and Transmission Development on BLM Land

Under Alternative 3, an estimated 5,751 archaeological and built-environment resources are within DFA footprints on the BLM LUPA lands as shown in Table R2.8-30 (Appendix R2.8). Overall, approximately 1% of estimated archaeological and built-environment resources occur within DFAs in BLM LUPA lands under Alternative 3. TCPs and cultural landscapes are not included in this calculation.

IV.8.3.5.2.2 Impacts of Changes to BLM Land Designations

Proposed ACEC and NLCS designations on BLM lands could provide benefits to cultural resources by establishing disturbance caps, which are designed to conserve and protect resource values, and renewable energy development would be prohibited in these designations. Development on NLCS lands would be limited to 1% of total authorized disturbance, or to the level allowed by collocated ACEC/wildlife allocations, whichever is more

restrictive. These disturbance caps and other management actions would minimize surface disturbance and provide protection for cultural resources.

Under Alternative 3, cultural resources found within BLM land designations are shown in Table R2.8-31. The majority of the estimated archaeological and built-environment resources (171,472) occur within the NLCS lands. In Alternative 3, the National Trail Management Corridor is 5 miles on either side of the centerline. As a result, an estimated 215,632 cultural resources would be protected. TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner.

IV.8.3.5.3 Impacts of Natural Community Conservation Plan: Alternative 3

The impacts of the NCCP for Alternative 3 would be the same as those defined in Section IV.8.3.5.1 for the Plan-wide analysis.

IV.8.3.5.4 Impacts of General Conservation Plan: Alternative 3

The impacts of the GCP for Alternative 3 would be similar to those defined in Section IV.8.3.5.1 for the Plan-wide analysis, but they would occur on nonfederal lands only.

Under Alternative 3, archaeological and built-environment resources found within GCP lands are shown in Table R2.8-32. For the GCP lands under Alternative 3, an estimated 7,485 archaeological and built-environment resources could occur within the DFA footprints. This is 1.4% of the total resources within the GCP lands. Table R2.8-33 has the number of estimated archaeological and built-environment resources within the GCP Reserve Design Lands under Alternative 3. Of the total GCP lands, approximately 13% would be within conservation acres. TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner.

IV.8.3.5.5 Impacts Outside the Plan Area

IV.8.3.5.5.1 Impacts of Transmission Outside the Plan Area

The impacts of transmission outside the Plan Area on cultural resources would be the same under all alternatives. These impacts are as described for the No Action Alternative in Section IV.8.3.1.5.

IV.8.3.5.5.2 Impacts of BLM LUPA Decisions Outside the Plan Area

Under Alternative 3, archaeological and built-environment resources expected within BLM land designations outside the Plan Area are shown in Table R2.8-34. There are 21,338 archaeological and built-environment resources on BLM LUPA lands outside the Plan Area. Of those resources, 3,434 occur on proposed NLCS lands, with 5,380 on existing and proposed ACEC lands and 1,224 within NSHT Management Corridors. TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner. Impacts of BLM land designations outside the Plan Area to cultural resources would be the same as those described under Section IV.8.3.5.1.2.

IV.8.3.5.6 CEQA Significance Determination for Alternative 3

The CEQA significance determinations for the impacts from Alternative 3 are the same as those described for the Preferred Alternative. However, in comparison to the Preferred Alternative, an estimated 12,193 archaeological and built-environment resources are located in the DFAs, and an estimated 773,112 resources located on 13,925,540 acres of Reserve Design Land. TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner. It is important to note, however, that many portions of the Southern California Desert remain unsurveyed and the identification, evaluation, and treatment of cultural resources would need to be conducted on a project-specific level to ensure that as-yet unidentified cultural resources are taken into account.

CR-1: Plan components could adversely affect historic period built-environment resources. The CEQA significance determinations for the impacts to historic period built-environment resources from Alternative 3 are the same as those described for the No Action Alternative. Implementation of Mitigation Measure CR-1a for historic period built-environment resources could reduce impacts to these resources to less than significant.

CR-2: Plan components could adversely affect prehistoric and historic period archaeological resources. The CEQA significance determinations for the impacts to prehistoric and historic period archaeological resources from Alternative 3 are the same as those described for the No Action Alternative. Mitigation Measure CR-2a for prehistoric and historic period archaeological resources is recommended; depending on the resource, implementation of these measures could reduce impacts to a less than significant level. However, the majority of the impacts to prehistoric and historic period archaeological resources from renewable energy development would be significant and unavoidable.

CR-3: Plan components could disturb human remains or cultural items, including funerary objects, sacred objects, and objects of cultural patrimony. The CEQA significance determinations for the impacts to human remains or cultural items from Alternative 3 are the same as those described for the No Action Alternative. Mitigation Measure CR-3a is recommended to protect human remains and cultural items. However, even with the implementation of these mitigation measures the impacts to human remains or cultural items would be significant and unavoidable.

CR-4: Plan components could affect cultural landscapes. The CEQA significance determinations for the impacts to cultural landscapes from the Preferred Alternative are the same as those described for the No Action Alternative. Mitigation Measure CR-4a for cultural landscapes is recommended; depending on the resource, implementation of these measures could reduce impacts to a less than significant level. However, the majority of the impacts to cultural landscapes from renewable energy development would be significant and unavoidable, even with mitigation.

IV.8.3.5.7 Comparison of Alternative 3 with Preferred Alternative

Chapter IV.27 presents a comparison of all action alternatives and the No Action Alternative across all disciplines. This section summarizes the comparison of Alternative 3 with the Preferred Alternative.

IV.8.3.5.7.1 Alternative 3 Compared With Preferred Alternative for Plan-Wide DRECP

Cultural resources vary by alternative in five main ways: (1) the estimated number of resources potentially impacted in DFAs, (2) the estimated number of resources conserved in Reserve Design Lands, (3) the cultural resources CMAs for NCLS lands, (4) the CMAs for National Historic Trails on NCLS lands and (5) the NHT corridor width and the number of resources conserved within the corridor.

Table IV.8-9
Comparison of Preferred Alternative with the Alternative 3 for Plan-Wide DRECP

	Preferred Alternative	Alternative 3
Number of resources in DFAs	12,543	13,265
Number of resources conserved in Reserve Design Lands	576,735	737,263
Plan-wide CMAs (general)	Reduce impacts cultural resources	Adverse effects addressed only through existing laws, regulations, and typical mitigation

Table IV.8-9
Comparison of Preferred Alternative with the Alternative 3 for Plan-Wide DRECP

	Preferred Alternative	Alternative 3
Cultural Resources CMAs for NCLS lands only.	With exception of research, no adverse effects to historic properties authorized.	Adverse effects to historic properties resolved through Section 106 and regional synthesis and interpretation.
National Historic Trail CMAs within NCLS lands	No adverse effects to NHT and NHT/historic properties authorized. All NHT segments assumed to be eligible for NRHP pending evaluation.	Adverse effects to historic properties resolved through Section 106.
NHT corridor width and number of resources conserved	5 miles on either side of centerline 28,437	5 miles on either side of centerline 18,052

The Preferred Alternative would impact fewer cultural resources in the DFA footprints as compared to Alternative 3. In contrast, Alternative 3 would conserve more resources in the Reserve Design Lands and more resources in the NHT corridors. In addition, the CMAs for the Preferred Alternative are significantly more protective than for Alternative 3.

Overall, although the number of resources conserved by Alternative 3 is larger, the CMAs in the Preferred Alternative are more protective. Therefore, the Preferred Alternative is more protective to cultural resources than Alternative 3.

Geographic Distinctions

As this is a programmatic analysis, no particularly sensitive cultural resources have been identified in any particular location within the Plan Area. However, different Ecoregion Subareas have different estimated cultural resources densities and some location types are known to be sensitive for cultural resources.

Under the Preferred Alternative, the Silurian Valley would be an SAA. Under Alternative 3 this location would be a BLM conservation allocation. Therefore, Alternative 3 would protect more cultural resources than the Preferred Alternative.

Under the Preferred Alternative, the Hidden Hills area would be a DFA. Under Alternative 3 this location would be a CPA. Based on previous studies associated with a proposed solar project in this location, the Hidden Hills area is known to be very culturally sensitive because of

the presence of a segment of the Salt Song Trail, Route 66, and a National Historic Trail. Therefore, Alternative 3 would protect more cultural resources than the Preferred Alternative.

Under the Preferred Alternative, the Notch in the Park, the area north of Tehachapi, and the area east of Twentynine Palms would be FAAs. Under Alternative 3, these locations would be undesignated. In each alternative these locations could either be developed or conserved, therefore there is no difference between the alternatives for cultural resources.

Under both the Preferred Alternative and Alternative 3, the Owens Valley Dry Lake would be a BLM conservation allocation. Dry lakes in this part of California are known to be very culturally sensitive. In addition, the Owens River Valley ecoregion subarea has the highest density of cultural resources of all of the DRECP ecoregion subareas (1.76 resources per acre). Therefore, both alternatives would protect cultural resources in this location equally.

Under the Preferred Alternative, Searles Lake between Ft. Irwin and China Lake would be undesignated. Under Alternative 3, this location would be a DFA. Therefore, the Preferred Alternative would be more likely to preserve cultural resources in this location than Alternative 3.

Under the Preferred Alternative, the area along U.S. 395 north of Edwards Air Force Base would be an SAA. Under Alternative 3, this location would be a BLM conservation allocation. Therefore, Alternative 3 would be more likely to preserve cultural resources in this location than the Preferred Alternative.

IV.8.3.5.7.2 Alternative 3 Compared with Preferred Alternative for the BLM Land Use Plan Amendment

In this section alternatives are distinguished through the comparison of the number of estimated cultural resources that would be conserved in BLM land designation (Tables R2.8-10 and R2.8-31) and the resources in BLM land designations that are also in DFAs and therefore might be impacted by development (Tables R2.8-9 and R2.8-30).

Table IV.8-10
Comparison of Preferred Alternative with
Alternative 3 for the BLM Land Use Plan Amendment

	Preferred Alternative Estimated # of Resources	Alternative 3 Estimated # of Resources
SRMA	68,801	69,111
NLCS	176,810	171,472
Existing and Proposed ACEC	84,542	93,324
Wildlife Allocation	742	526

Table IV.8-10
Comparison of Preferred Alternative with Alternative 3 for the BLM Land Use Plan Amendment

	Preferred Alternative Estimated # of Resources	Alternative 3 Estimated # of Resources
LWCs	11,237	21,605
Trail Management Corridors	28,437	215,632
BLM LUPA Land in DFA Footprint	6,855	5,751

While the number of resources conserved by each type of BLM land designation vary, cultural resources CMAs apply to NLCS, ACECs, and trail management corridors and so the importance of those designations are emphasized here. Overall, while a larger number of resources would be protected by Alternative 3, the Preferred Alternative protects them more effectively through CMAs.

IV.8.3.5.7.3 Alternative 3 Compared with Preferred Alternative for NCCP

The impacts of the NCCP for Alternative 3 are the same as those defined in Section IV.8.3.5.1 for the Plan-wide analysis. As a result, the comparison of Alternative 3 with the Preferred Alternative for the NCCP is the same as described for Plan-wide DRECP.

IV.8.3.5.7.4 Alternative 3 Compared with Preferred Alternative for the GCP

In this section alternatives are distinguished through the comparison of the number of estimated cultural resources on GCP lands that might be impacted by development (Tables R2.8-11 and R2.8-18) and the estimated number of resources that would be conserved (Tables R2.8-12 and R2.8-19).

Table IV.8-11
Comparison of Preferred Alternative with Alternative 3 for the GCP

	Preferred Alternative Estimated # of Resources	Alternative 3 Estimated # of Resources
GCP DFAs	5,662	7,485
Conserved	69,920	69,920

Overall, while both alternatives conserve the same number of resources, Alternative 3 would potentially impact more cultural resources than the Preferred Alternative. Therefore, the Preferred Alternative is more protective of cultural resources than Alternative 3.

IV.8.3.6 Alternative 4

IV.8.3.6.1 Plan-Wide Impacts of Implementing the DRECP: Alternative 4

IV.8.3.6.1.1 Plan-Wide Impacts and Mitigation Measures From Renewable Energy and Transmission Development

Impact Assessment

Renewable energy development activities covered by the DRECP would be confined to DFAs. Under Alternative 4, an estimated 15,787 archaeological and built-environment resources would occur within DFAs (see Appendix R2.8, Table R2.8-35). The density of these resources by ecoregion is shown in Figure IV.8-6. TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner. Each impact is described below.

Impact CR-1: Plan components could affect historic period built-environment resources.

As described in Section IV.8.2, all phases of renewable energy development under all of the alternatives have the potential to impact historic period built-environment resources.

Impact CR-2: Plan components could affect prehistoric and historic period archaeological resources.

As described in Section IV.8.2, all phases of renewable energy development under all of the alternatives have the potential to impact prehistoric and historic period archaeological resources.

Impact CR-3: Plan components could disturb human remains or cultural items, including funerary objects, sacred objects, and objects of cultural patrimony.

As described in Section IV.8.2, disturbance of human remains or cultural items could result from construction-related ground-disturbance activities. Ground-disturbing activities such as grading, vegetation clearing, and foundation excavations could lead to the unintentional discovery of burials and cultural objects, which are typically unmarked.

Impact CR-4: Plan components could affect cultural landscapes.

As described in more detail in Section IV.8.2, all phases of renewable energy development under all of the alternatives have the potential to impact cultural landscapes.

Impacts in Study Area Lands

Study Area Lands refer to three categories of lands: Future Assessment Areas (FAAs), Special Analysis Areas (SAAs) and DRECP Variance Lands. Development in any of the Study Area Lands could adversely impact resources important to tribes and other communities.

Future Assessment Areas. In Alternative 4, all FAAs identified in the Preferred Alternative would be undesignated areas except that portions of the FAA south of Historic Route 66 would become DRECP Variance Lands (Table IV.1-2).

Special Analysis Areas (SAAs). In Alternative 4, portions of SAAs identified in the Preferred Alternative would be DRECP Variance Lands as described below, but the majority of these areas would be conservation lands (near U.S. 395) and undesignated areas (near Ft. Irwin) (Table IV.1-3).

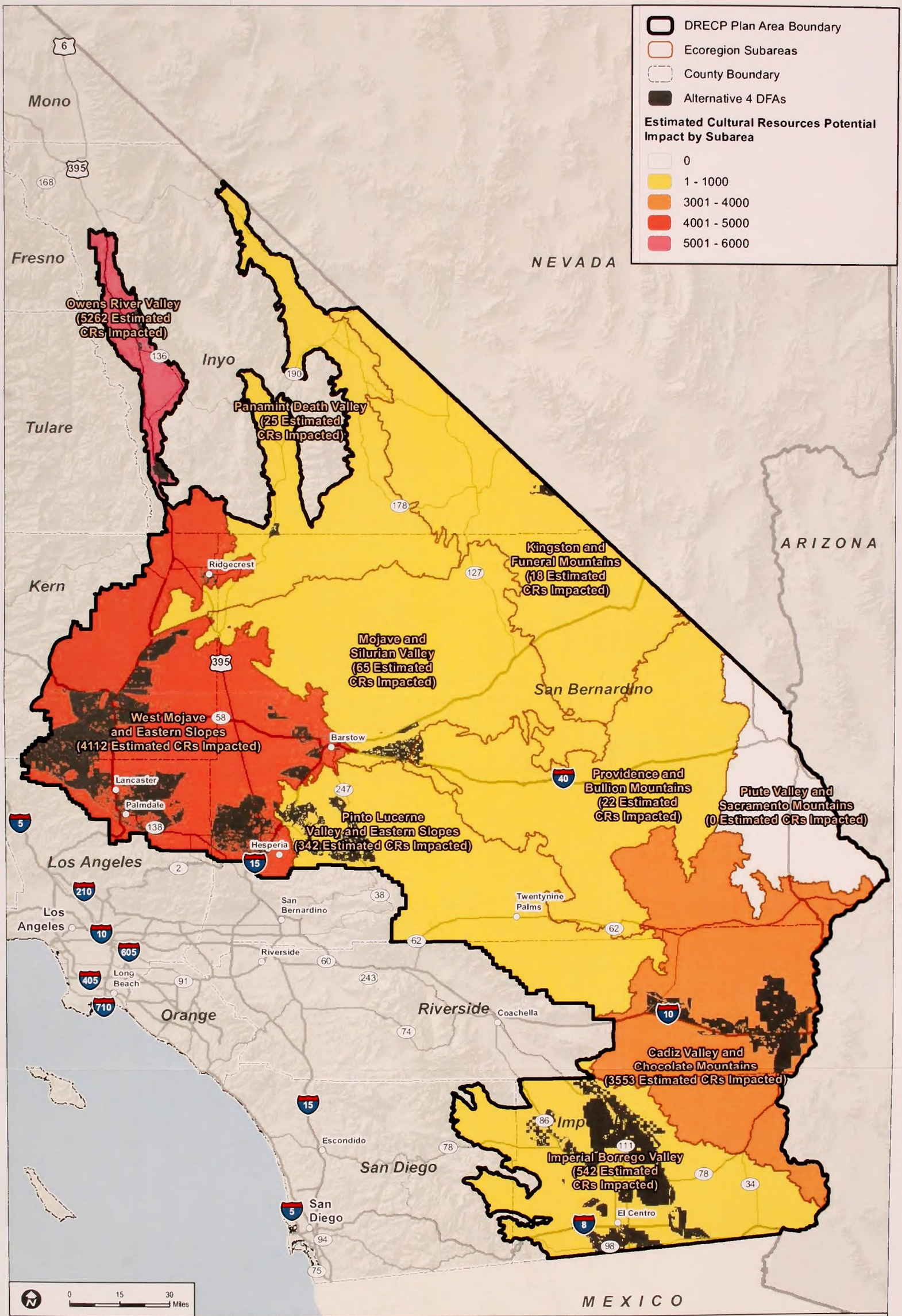
DRECP Variance Lands. Under Alternative 4, a total of 588,000 acres would be Variance Lands. This area is predicted to contain a total of 11,760 archaeological and built-environment resources (Table IV.1-4).

Impact Reduction Strategies and Mitigation

The implementation of the Plan would result in conservation of some desert lands as well as the development of renewable energy generation and transmission facilities on other lands. The impacts of the renewable energy development covered by the Plan would be lessened in several ways. First, the Plan incorporates CMAs for each alternative, including specific biological reserve design components and LUPA components. Also, the implementation of existing laws, orders, regulations, and standards would reduce the impacts of project development. If significant impacts would still result after implementation of CMAs and compliance with applicable laws and regulations, then specific mitigation measures are recommended in this section.

Conservation and Management Actions

The conservation strategy for Alternative 4 (see Section II.3.1.1) defines specific actions that would reduce the impacts of this alternative. The conservation strategy includes definition of the reserve design and specific CMAs that apply to all alternatives and some that are specific to each alternative. While the CMAs were developed for BLM lands only, this analysis assumes that all CMAs would be applied also to nonfederal lands. As such, the details of these CMAs would be modified to meet the requirements of state law, the CEC or other appropriate state lead agencies. However, those modifications are not presented here. It is important to note that cultural resources CMAs and National Scenic and Historic Trails CMAs associated with National Landscape Conservation System Lands and Areas of Critical Environmental Concern vary significantly by alternative.



Sources: ESRI (2014); CEC (2013); BLM (2013); CDFW (2013); USFWS (2013); RECON 2014

FIGURE IV.8-6

Estimated Number of Cultural Resources within DFAs by Ecoregion Subarea – Alternative 4

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Except for the following CMAs specific to Alternative 4 relating to cultural resources, all CMAs are the same as the Preferred Alternative.

Planning Area–Wide National Conservation Land Management Direction

This CMA would also be applied to nonfederal lands but modified to meet the requirements of state law and the CEC or other state lead agencies. This CMA also varies significantly by alternative.

- **Cultural Resources –** Any adverse effect to historic properties resulting from allowable uses will be addressed through the Section 106 process of the NHPA and the implementing regulations at 36 CFR Part 800. Resolution of adverse effects will in part be addressed via alternative mitigation that includes either protection of resources of importance to tribes or acquisition of comparable sites into public ownership similar to those that are going to be destroyed.

Development Focus Areas.

- **Soil, Water, and Water-Dependent Resources.** Would require that disturbance of sensitive soils be limited to 20% of the sensitive soil areas within a proposed project footprint. In addition, this would limit disturbance of desert pavement so that no more than 5% of the desert pavement within a proposed project footprint shall be disturbed for construction.

Conservation and Management Actions for National Trails

- **Management corridor width (see also maps)**: Establish a National Trail Management Corridor, width generally 1 mile from centerline of the trail. It is important to note these widths vary by alternative, resulting in varying amounts of conserved land.
- **Management of Trail Corridors:** Manage National Trails as components of BLM's National Landscape Conservation System. Where National Trails overlap other National Conservation Lands, the more protective CMAs or land use allocations would apply.
- **Lands and Realty**
  - **Rights-of-Way**
    - **Site Authorizations**: NSHT Management Corridors would be avoidance areas. Sites' rights-of-way would require mitigation/compensation resulting in net benefit to the NSHT.
    - **Linear ROWs:** NSHT Management Corridors would be avoidance areas except in designated transmission corridors. Exclude cultural landscapes,

high-potential historic sites, and high-potential route segments identified along historic trails corridors from transmission except in approved transmission corridors. Where development affects national scenic or historic trail management corridors, an analysis must be performed to ensure that the development does not substantially interfere with the nature and purposes of the trail, and that mitigation/compensation results in a net benefit to the trail

    - **Renewable Energy ROWs**: Exclude cultural landscapes, high-potential historic sites, and high-potential route segments identified along historic trails corridors from transmission except in approved DFAs. Where development affects NSHT Management Corridors, an analysis must be performed to ensure that it does not substantially interfere with the nature and purposes of the trail and that mitigation/compensation results in a net benefit to the trail.

  - **Land Tenure**

    - Exchange, purchase, donation would be permitted to acquire lands within NSHT. Disposal would be permitted if it results in net benefit to trail values through acquisition or other compensation. Lands within the National Trail Management Corridors would be retained.

- **Minerals**

  - **Locatable Minerals**: For the purposes of locatable minerals, National Trail corridors would be treated as "controlled" or "limited" use areas in the CDCA, requiring a Plan of Operations for greater than casual use under 43 CFR 3809.11.

  - **Saleable Minerals**: NSHT Management Corridors would be available for saleable mineral development.

  - **Leasable Minerals**: NSHT Management Corridors may be available for geothermal leasing; however, these lands may only be offered for lease with a special stipulation to protect the appropriate resources as defined in the 2008 PEIS for Geothermal Leasing in the Western United States (Geothermal PEIS). Special stipulations which provide protections greater than the standard lease terms may include Timing Limitations (TL), Controlled Surface Use (CSU), or No Surface Occupancy (NSO) Lease Stipulations. National Conservation Lands values must be protected or enhanced through mitigation/compensation.

- **Recreation and Visitor Services:** Competitive and Commercial SRPs permitted if they do not interfere with the nature and the purposes of the trail.

- **Cultural Resources:** This CMA would also be applied to nonfederal lands but modified to meet the requirements of state law and the CEC or other state lead agencies. This CMA also varies by alternative.

- Any adverse effects to historic properties resulting from allowable uses would be addressed through the Section 106 process of the NHPA and the implementing regulations at 36 CFR Part 800.

Laws and Regulations

Similar to the No Action Alternative, existing laws and regulations would reduce certain impacts of Plan implementation. Relevant regulations are presented in the Regulatory Setting in Volume III. The requirements of relevant laws and regulations are summarized for the No Action Alternative in Section IV.8.3.1.1.1.

Mitigation Measures

After implementation of the CMAs and existing laws and regulations, mitigation measures would be applied to further reduce some of the DRECP's adverse impacts. Recommended mitigation measures are detailed for the Preferred Alternative in Section IV.8.3.2.1.1, and summarized below.

Mitigation Measures for Impact CR-1: Plan components could affect historic period built-environment resources. Mitigation CR-1a would protect historic period built-environment resources.

Mitigation Measures for Impact CR-2: Plan components could affect prehistoric and historic period archaeological **resources.** Mitigation CR-2a would protect prehistoric and historic period archaeological resources.

Mitigation Measures for Impact CR-3: Plan components could disturb human remains or cultural items, including associated funerary objects, sacred objects, and objects of cultural patrimony. Mitigation Measure CR-3a is recommended to protect human remains.

Mitigation Measures for Impact CR-4: Plan components could affect cultural landscapes. Mitigation Measure CR-4a is recommended to protect cultural landscapes.

IV.8.3.6.1.2 Impacts from Reserve Design

Under Alternative 4, cultural resources would be protected from disturbance by establishing conservation areas. Proposed new ACEC and NLCS designations would protect cultural resources. This would occur partly from disturbance caps designed to conserve and protect the resource values, and renewable energy development would be prohibited in these designations. Development in NLCS lands would be limited to 1% of total authorized disturbance, or to the level allowed by collocated ACEC/wildlife allocations,

whichever is more restrictive. These disturbance caps and other management actions would minimize surface disturbance and provide protection for cultural resources.

Under Alternative 4, an estimated 698,487 resources (or 54% of all known archaeological and built-environment resources) would occur within Reserve Design Lands (see Table R2.8-36 in Appendix R2.8). TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner. Due to their location within the conservation reserve system, resources in these areas would not be subject to impacts from renewable energy development.

IV.8.3.6.2 Impacts of DRECP Land Use Plan Amendment on BLM Land: Alternative 4

This section addresses two components of effects of the BLM LUPA: the streamlined development of renewable energy and transmission on BLM land under the LUPA, and the impacts of the amended land use plans themselves.

IV.8.3.6.2.1 Impacts from Renewable Energy and Transmission Development on BLM Land

Under Alternative 4, an estimated 7,901 archaeological and built-environment resources are within DFA footprints on the BLM LUPA lands as shown in Table R2.8-37 (Appendix R2.8). Overall, approximately 1.4% of estimated cultural resources occur within DFAs in BLM LUPA lands under Alternative 4. TCPs and cultural landscapes are not included in this calculation.

IV.8.3.6.2.2 Impacts of Changes to BLM Land Designations

Proposed ACEC and NLCS designations on BLM lands could provide benefits to cultural resources by establishing disturbance caps designed to conserve and protect resource values, and renewable energy development would be prohibited in these designations. Development on NLCS lands would be limited to 1% of total authorized disturbance, or to the level allowed by collocated ACEC/wildlife allocations, whichever is more restrictive. These disturbance caps and other management actions would minimize surface disturbance and provide protection for cultural resources.

Under Alternative 4, archaeological and built-environment resources expected within BLM land designations on BLM LUPA lands are shown in Table R2.8-38. The majority of the estimated archaeological and built-environment resources (127,563) occur within the NLCS lands. In Alternative 4, the National Trail Management Corridor is 1 mile on either side of the centerline. As a result, an estimated 7,164 cultural resources would be protected. TCPs and cultural landscapes are not included in this calculation.

IV.8.3.6.3 Impacts of Natural Community Conservation Plan: Alternative 4

The impacts of the NCCP for Alternative 4 would be the same as those defined in Section IV.8.3.6.1 for the Plan-wide analysis.

IV.8.3.6.4 Impacts of General Conservation Plan: Alternative 4

The impacts of the GCP for Alternative 4 would be similar to those defined in Section IV.8.3.6.1 for the Plan-wide analysis, but they would occur on nonfederal lands only.

Under Alternative 4, archaeological and built-environment resources found within GCP lands are shown in Table R2.8-39. For the GCP lands under Alternative 4, an estimated 7,863 archaeological and built-environment resources could occur within the technology footprints in the DFA footprints. This is 1.5% of the total archaeological and built-environment resources within the GCP lands. Table R2.8-40 has the number of estimated archaeological and built-environment resources within the GCP Reserve Design Lands under Alternative 4. Of the total GCP lands, approximately 11% would be within conservation acres. TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner.

IV.8.3.6.5 Impacts Outside the Plan Area

IV.8.3.6.5.1 Impacts of Transmission Outside the Plan Area

The impacts of Outside the Plan Area transmission on cultural resources would be the same under all alternatives. These impacts are as described for the No Action Alternative in Section IV.8.3.1.5.

IV.8.3.6.5.2 Impacts of BLM LUPA Decisions Outside the Plan Area

Under Alternative 4, archaeological and built-environment resources expected within BLM land designations outside the Plan Area are shown in Table R2.8-41. There are 21,338 archaeological and built-environment resources on BLM LUPA lands outside the Plan Area. Of those resources, 3,304 are on proposed NLCS lands, with 5,379 on existing and proposed ACEC lands, and 338 within NSHT Management Corridors. TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner. Impacts of BLM land designations outside the Plan Area on all types of cultural resources would be the same as those described in Section IV.8.3.6.1.2.

IV.8.3.6.6 CEQA Significance Determination for Alternative 4

The CEQA significance determinations for the impacts from Alternative 4 are the same as those described for the Preferred Alternative. However, in comparison to the Preferred Alternative, an estimated 13,941 archaeological and built-environment resources are located in the DFAS, and an estimated 756,856 resources located on 13,279,016 acres of Reserve Design Land. TCPs and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a qualitative manner. It is important to note, however, that many portions of the Southern California Desert remain unsurveyed and the identification, evaluation, and treatment of cultural resources would need to be conducted on a project-specific level to ensure that as-yet unidentified cultural resources are taken into account.

CR-1: Plan components could adversely affect historic period built-environment resources. The CEQA significance determinations for the impacts to historic period built-environment resources from Alternative 4 are the same as those described for the No Action Alternative. Implementation of Mitigation Measure CR-1a for historic period built-environment resources could reduce impacts to these resources to less than significant.

CR-2: Plan components could adversely affect prehistoric and historic period archaeological resources. The CEQA significance determinations for the impacts to prehistoric and historic period archaeological resources from Alternative 4 are the same as those described for the No Action Alternative. Mitigation Measure CR-2a for prehistoric and historic period archaeological resources is recommended; depending on the resource, implementation of these measures could reduce impacts to a less than significant level. However, the majority of the impacts to prehistoric and historic period archaeological resources from renewable energy development would be significant and unavoidable.

CR-3: Plan components could disturb human remains or cultural items, including associated funerary objects, sacred objects, and objects of cultural patrimony. The CEQA significance determinations for the impacts to human remains or cultural items from Alternative 4 are the same as those described for the No Action Alternative. Mitigation Measure CR-3a is recommended to protect human remains and cultural items. However, even with the implementation of these mitigation measures the impacts to human remains or cultural items would be significant and unavoidable.

CR-4: Plan components could affect cultural landscapes. The CEQA significance determinations for the impacts to cultural landscapes from Alternative 4 are the same as those described for the No Action Alternative. Mitigation Measure CR-4a for cultural landscapes is recommended; depending on the resource, implementation of these measures could reduce

impacts to a less than significant level. However, the majority of the impacts to cultural landscapes from renewable energy development would be significant and unavoidable, even with mitigation.

IV.8.3.6.7 Comparison of Alternative 4 with Preferred Alternative

Chapter IV.27 presents a comparison of all action alternatives and the No Action Alternative across all disciplines. This section summarizes the comparison of Alternative 4 with the Preferred Alternative.

IV.8.3.6.7.1 Alternative 4 Compared With Preferred Alternative for Plan-Wide DRECP

Cultural resources vary by alternative in five main ways: (1) the estimated number of resources potentially impacted in DFAs, (2) the estimated number of resources conserved in Reserve Design Lands, (3) the cultural resources CMAs for NCLS lands, (4) the CMAs for National Historic Trails on NCLS lands, and (5) the NHT corridor width and the number of resources conserved within the corridor.

Table IV.8-12
Comparison of Preferred Alternative with Alternative 4 for Plan-Wide DRECP

	Preferred Alternative	Alternative 4
Number of resources in DFAs	12,543	15,787
Number of resources conserved in Reserve Design Lands	576,735	698,487
Plan-wide CMAs (general)	Reduce impacts cultural resources	Adverse effects will be addressed only through existing laws, regulations, and typical mitigation
Cultural Resources CMAs for NCLS lands only.	With exception of research, no adverse effects to historic properties authorized.	Adverse effects to historic properties resolved through Section 106 and compensatory mitigation.
National Historic Trails CMAs within NCLS lands	No adverse effects to NHT and NHT/historic properties authorized. All NHT segments assumed to be eligible for NRHP pending evaluation.	Adverse effects to historic properties resolved through Section 106
NHT corridor width and number of resources conserved	5 miles on either side of centerline 28,437	1 mile on either side of centerline 7,164

The Preferred Alternative would impact fewer cultural resources in the DFA footprints as compared to Alternative 4. In contrast, Alternative 4 would conserve more resources in the Reserve Design Lands but conserve less resources in the NHT corridors. In addition, the CMAs for the Preferred Alternative are significantly more protective than for Alternative 4.

Overall, although the number of resources conserved by Alternative 4 is larger, the CMAs in the Preferred Alternative are more protective. Therefore the Preferred Alternative is more protective to cultural resources than Alternative 4.

Geographic Distinctions

As this is a programmatic analysis, no particularly sensitive cultural resources have been identified in any particular location within the Plan Area. However, different Ecoregion Subareas have different estimated cultural resources densities and some location types are known to be sensitive for cultural resources.

Under the Preferred Alternative, the Silurian Valley would be an SAA. Under Alternative 4 this location would be Variance Lands. In each alternative this location could either be developed or conserved, therefore there is no difference between the alternatives for cultural resources.

Under the Preferred Alternative, the Hidden Hills area would be a DFA. Under Alternative 4, this location would be a DFA and Variance Lands. Based on previous studies associated with a proposed solar project in this location, the Hidden Hills area is known to be very culturally sensitive because of the presence of a segment of the Salt Song Trail, Route 66, and a National Historic Trail. Both of these alternatives have the potential to impact cultural resources negatively, therefore there is no difference between the alternatives for cultural resources.

Under the Preferred Alternative, the Notch in the Park, the area east of Twentynine Palms, and the area east of Tehachapi would be FAAs. Under Alternative 4, the first two locations would be undesignated and the third would be Variance Lands. In each alternative this location could either be developed or conserved, therefore there is no difference between the alternatives for cultural resources.

Under both the Preferred Alternative, the Owens River Valley Dry Lake would be a BLM conservation allocation. Under Alternative 4 this location would be Variance Lands. Dry lakes in this part of California are known to be very culturally sensitive. In addition, the Owens River Valley ecoregion subarea has the highest density of cultural resources of all of the DRECP ecoregion subareas (1.76 resources per acre). Therefore, the Preferred Alternative would be more protective of cultural resources in this location.

Under the Preferred Alternative, Searles Lake between Ft. Irwin and China Lake would be undesignated. Under Alternative 4, this location would be undesignated. In each alternative

this location could either be developed or conserved, therefore there is no difference between the alternatives for cultural resources.

Under the Preferred Alternative, the area along U.S. 395 north of Edwards Air Force Base would be an SAA. Under Alternative 4, this location would be a BLM conservation allocation. Therefore, Alternative 4 would protect more cultural resources in this location than the Preferred Alternative.

IV.8.3.6.7.2 Alternative 4 Compared with Preferred Alternative for the BLM Land Use Plan Amendment

In this section alternatives are distinguished through the comparison of the number of estimated cultural resources that would be conserved in BLM land designation (Tables R2.8-10 and R2.8-38) and the resources in BLM land designations that are also in DFAs and therefore might be impacted by development (Tables R2.8-9 and R2.8-37).

Table IV.8-13
Comparison of Preferred Alternative with
Alternative 4 for the BLM Land Use Plan Amendment

	Preferred Alternative Estimated # of Resources	Alternative 4 Estimated # of Resources
SRMA	68,801	70,676
NLCS	176,810	127,563
Existing and proposed ACEC	84,542	92,960
Wildlife allocation	742	10,193
LWCs	11,237	10,338
Trail management corridors	28,437	7,164
BLM LUPA land in DFA footprint	6,855	7,901

While the number of resources conserved by each type of BLM land designation vary, cultural resources CMAs apply to NLCS, ACECs, and trail management corridors and so the importance of those designations are emphasized here. Overall, a larger number of resources would be protected more effectively by the Preferred Alternative as compared to Alternative 4.

IV.8.3.6.7.3 Alternative 4 Compared with Preferred Alternative for NCCP

The impacts of the NCCP for Alternative 4 are the same as those defined in Section IV.8.3.6.1 for the Plan-wide analysis. As a result, the comparison of Alternative 4 with the Preferred Alternative for the NCCP is the same as described for Plan-wide DRECP.

IV.8.3.6.7.4 Alternative 4 Compared with Preferred Alternative for the GCP

In this section alternatives are distinguished through the comparison of the number of estimated cultural resources on GCP Lands that might be impacted by development (Tables R2.8-11 and R2.8-39) and the estimated number of resources that would be conserved (Tables R2.8-12 and R2.8-40).

Table IV.8-14
Comparison of Preferred Alternative with Alternative 4 for the GCP

	Preferred Alternative Estimated # of Resources	Alternative 4 Estimated # of Resources
GCP DFAs	5,662	7,863
Conserved	69,920	59,164

Overall, Alternative 4 would both conserve fewer resources and would potentially impact more cultural resources than the Preferred Alternative. Therefore, the Preferred Alternative is more protective of cultural resources than Alternative 4.

IV.9 NATIVE AMERICAN INTERESTS

The analysis in this chapter addresses potential impacts to tribal interests from implementing the Desert Renewable Energy Conservation Plan (DRECP or Plan) and its Covered Activities. These activities include renewable energy and transmission development, the reserve design, Bureau of Land Management (BLM) Land Use Plan Amendments (LUPA), the U.S. Fish and Wildlife Service (USFWS) General Conservation Plan (GCP), and the California Department of Fish and Wildlife Natural Community Conservation Plan (NCCP). Each of these is defined for each alternative (see Volume II for descriptions of Development Focus Areas [DFAs], Reserve Design Lands, and Study Area Lands). The primary consideration in quantifying tribal impacts at this programmatic level of analysis is the extent to which the tribal concerns described in Volume III, Chapter III.9, Native American Interests, intersect with, and are affected by, the proposed DFAs, transmission, and conservation lands within the reserve design.

Appendix R2.9 includes 41 tables supporting this chapter. The tables present data that estimate the number the number of acres of the California Desert Conservation Area (CDCA)-designated Native American Elements (NAEs) and of cultural resources (data available only for archaeological and built-environment resources) that might be impacted by the different components and technology types for each alternative. These tables present these numbers by ecoregion subarea per alternative and by technology type (solar, wind, geothermal, and transmission). The number of NAE acres and estimated resources in DRECP component lands (conservation lands, DFAs [Available Development Areas for No Action Alternative], and BLM LUPA areas) are also represented. Specific tables are referenced in each section of the analysis that follows.

IV.9.1 Approach to Impact Analysis

Tribal interests are associated with (1) the process of environmental review, permitting, and mitigation under the National Environmental Policy Act (NEPA), Section 106 of the National Historic Preservation Act (NHPA), Native American Graves Protection and Repatriation Act (NAGPRA), Executive Order 12898 (Environmental Justice), Executive Order 13007 (Indian Sacred Sites), Endangered Species Act, Bald and Golden Eagle Protection Act, and California Environmental Quality Act (CEQA) and (2) impacts to the physical world. Process concerns include consultation, ethnography, document review, confidentiality, monitoring, repatriation, access, and environmental justice. Physical-world concerns focus on physical resources, items, or places of concern to tribes, including cultural and natural resources. See Chapters III.8 and III.9 for more details.

These broad interests share a perspective where the whole of the landscape is interconnected and imbued with a life force. Large-scale, landscape-focused analyses for tribal concerns

have been supported by recent federal and state policies. The Solar Programmatic Environmental Impact Statement (PEIS) published by BLM in 2012 included chapters on California tribal concerns, with a section describing traditional cultural properties and a landscape perspective for the analysis of cultural resources in a manner consistent with tribal perspectives (BLM 2012, Volume 3, Part 1, Section 9.1.18, Native American Concerns).

Department of the Interior Secretary Sally Jewell issued Secretarial Order No. 3330 on October 31, 2013, in which Department of the Interior agencies were directed to "avoid potential environmental impacts from projects through steps such as advanced landscape-level planning that identifies areas suitable for development because of relatively low natural or cultural resource conflicts" (Secretarial Order 3330 2013). In April of 2014, the Energy and Climate Change Task Force issued its report *A Strategy for Improving the Mitigation Policies and Practices of The Department of the Interior* (Department of the Interior 2014). This report highlights the challenges and opportunities associated with developing and implementing an effective mitigation policy. It also describes the key principles and actions necessary to successfully shift from project-by-project management to consistent, landscape-scale, science-based management of Department of the Interior lands and resources. Similarly, the California Office of Historic Preservation has specifically called out a need for cultural resources professionals working on renewable energy projects to shift focus from the site level to the landscape level of assessment (Office of Historic Preservation 2013).

IV.9.1.1 General Methods

As discussed in Section III.9.4, two broad areas of concern to those tribes potentially affected by decisions in DRECP have been identified: physical world concerns and process concerns. Physical world concerns include impacts to cultural resources (including traditional cultural properties and landscapes), human remains, and natural resources. Section III.9.4.2 discusses physical concerns in more detail. Process concerns include environmental review, permitting, and mitigation under the National Environmental Policy Act (NEPA), the California Environmental Quality Act (CEQA), Section 106 of the National Historic Preservation Act (NHPA) and the role of Native Americans in that process. Process concerns are discussed in more detail in Section III.9.4.1. In analyzing potential impacts of concern to tribes, this section uses a combination of several quantitative and qualitative techniques. This approach combines methods developed specifically for the Plan Area, cultural resources methods, and environmental justice methods. This section also discusses the limitations of these methods.

First, Native American Elements (NAEs) were identified as "concentrated, sensitive areas of traditional Native American secular and religious uses." BLM originally developed maps representing NAEs and their locations within and in relation to traditional tribal territories,

traditional use areas, and Areas of Critical Environmental Concern (ACEC) in 1980 as part of the CDCA Plan. These sensitive locations are relevant to both the contemporary and traditional concerns of Native Americans and organized tribal governments (BLM 1980a). This chapter presents maps based on these original NAE maps, but the new maps add the DRECP boundaries, the CDCA, and DRECP elements (e.g., ecoregion subareas, DFAs, and Conservation Lands).The NAEs are considered to especially sensitive to impacts associated with renewable energy development in the Plan Area. As such, an alternative where DFAs overlap with a larger number of NAE acres is considered to have a greater impact than an alternative that overlaps with a smaller number of NAE acres.

Tables in Appendix R2.9 present details on the number of acres of the CDCA-designated NAEs that could be impacted by the different components and technology types for each alternative. These tables present the acres of NAEs by ecoregion subarea per alternative and number of acres impacted by technology type (solar, wind, geothermal, and transmission). Acres of NAE in DRECP component lands (conservation lands, DFAs [Available Development Areas for No Action Alternative], and BLM LUPA areas) are also represented. Each section in the analysis references specific tables.

Second, this analysis assumes that tribal communities are also interested in cultural resources, which may or may not have been included in NAEs. Therefore, in addition to NAE acres this analysis also considers estimates of the numbers of cultural resources within DFAs and the Conservation Planning Areas, which were central to the Cultural Resources (IV.8) impact analysis. The methods used to calculate these estimates are described in detail in Section IV.8.1.1. Tables in Appendix R2.8 present the estimated number of resource that could be impacted by the different components and technology types for each alternative. In this quantitative analysis, an alternative which impacts a larger estimated number of resources is considered to have a greater impact than an alternative that impacts a smaller number of estimated resources. It should be noted that based on how the data was collected, resources that are likely to be more of interest to tribes, such as prehistoric archaeological sites, cannot be distinguished from other resources, such as historic archaeological sites and built-environment resources. In addition, these calculations do not include other kinds of resources that are especially of interest to tribes—traditional cultural properties and cultural landscapes.

The two methods described above attempt to identify potential physical world impacts. The identification of impacts associated with process concerns uses cultural resources concepts and an adaptation of environmental justice methods. As discussed in Section III.9.2, developing methods for environmental justice analyses has been challenging. The key issue is the concept of "disproportionate impact." Despite years of effort, a nationally consistent definition of disproportionate impact and variables that should be measured, have not been identified. The utility of a single definition has been challenged because not

all disproportionately impacted communities share one singular experience of injustice. Standard tools tend to focus on impacts to health due to air pollution and overlook other environmental concerns. Of particular relevance for the current analysis, standard tools do not accommodate qualitative data or the distinctive concerns on traditional tribal territories (Holifield 2014).

Environmental justice concerns of minorities and low-income populations living in the Plan Area, including Native Americans, are analyzed in Section IV.23 using census tract demographic data provided in Appendices R1.23 and R2.23. The analysis seeks to identify if these populations are distributed disproportionately within the Plan Area or if the Plan would introduce any proposed land use designations whose negative impacts could be disproportionately borne by minority or low-income populations. See Section IV.23.3 for more information regarding the results of this analysis.

This analysis is more focused. It attempts to address some of the concerns identified by Holifield (2014). As discussed in Section III.9.2, communities that could be impacted by the DRECP are defined in the current analysis as all tribes and Native American organizations with traditional affiliations in the Plan Area, regardless of the residence of each member. The analysis is focused on types of disproportionate impacts: damage to cultural connections to landscapes, damage to the perpetuation of the generations, and financial stress on tribal government services. Therefore, renewable energy development within NAEs and cultural landscapes could be considered an adverse impact from environmental justice perspective. As a result of their historical ties to the Plan Area and unique legal relationship with both federal and state governments, some tribal communities may be disproportionately impacted through their participation in the NEPA, CEQA, and Section 106 process. The inability of a tribal community to participate in the environmental review of all proposed projects of interest to their members because of stress on community services would be considered an adverse impact.

The methods described above have limitations. First, the CDCA-designated NAE areas and estimates about the number of cultural resources that might be impacted, while important, do not represent a complete list of places or areas important to tribes or the total impacts anticipated. It would be necessary to conduct additional research, consultation, and meaningful engagement with affected tribal communities on a project-specific level to identify additional areas of concern and importance. Second, NAEs may or may not contain cultural resources of interest to tribes, resulting in an overlap between these analytical categories. Third, there may be a distinction in terms of the perception of impacts to resources important to tribal communities. Typically, analysis in environmental documents is undertaken on a primarily quantitative level (i.e., the preferred alternative is usually the one that affects the fewest resources). However, this method may not account for tribal concerns and perspectives. The traditional tribal world-view may consider the cultural and

spiritual value of the resource and not the total number of impacted resources. For example, some tribes may consider that an adverse impact to two resources is as severe as an impact to 40 resources. As a result, a distinction between alternatives based on a standard metric may not be relevant for resources of concern to tribes because any potential development that would impact resources is considered equally negative.

The accurate evaluation of potential impacts on tribal values can only be made within the cultural context from which those values are derived (BLM 1980, NAE). The thresholds for identifying resources of interest to tribes and impacts to those resources depend on close coordination, communication, collaboration and formal consultation with tribes. With the participation of tribal governments and individuals, agency staff can make better determinations.

IV.9.1.2 CEQA Standards of Significance

There are no specific CEQA standards of significance for tribal concerns or environmental justice concerns; however, some of the standards of significance for cultural resources apply. CEQA has established the following significance standards for use in determining the significance of impacts to cultural resources from a proposed action or project. Impacts would be considered significant if the project would:

- Cause a substantial adverse change in the significance of a historical resource or unique archaeological resources, as defined in Title 14, California Code of Regulations, Section 15064.a5, and California Public Resources Code, Section 21083.2.
- Disturb any human remains, including those interred outside of formal cemeteries.

Tribes are also concerned with other resources that have their own CEQA standards of significance. Some of these include paleontological resources, mineral resources, noise, water quality and supply, erosion, plants, animals, air, and traffic.

IV.9.2 Typical Impacts Common to All Action Alternatives

Impacts to resources of tribal concern would be addressed on a project-specific basis in supplemental CEQA and NEPA processes for evaluation of renewable energy and transmission projects. These projects would require project-specific environmental review that would address site-specific impacts to resources of tribal concern as part of the approval process. These impacts would be discussed in government-to-government consultation between the lead agency(ies) and the tribal government(s). Consideration of resources of tribal concern is based on typical impacts from renewable energy development. Impacts to resources of tribal concern are similar to those of cultural resources and environmental justice. Therefore, impact analysis for resources of tribal

concerns is based on typical cultural resources impacts from renewable energy developments. However, environmental justice impacts in this analysis are focused on the cultural and spiritual concerns of Native Americans as they relate to the study area environment and to the cost burden, which tribal governments and organizations bear during the NEPA, Section 106, and CEQA process. Tribes affiliated with project areas through ancestral or traditional-use claims constitute environmental justice populations. Tribal people maintain long-standing ancestral and traditional-use practices and concepts connected to the environment and to their identities as Indian people. Other environmental justice concerns, such as health, are addressed in Section IV.23.

Impacts to resources of tribal concern are considered actions that result in:

- Physical destruction, damage, or alteration to all or part of the significant cultural resource.
- Isolation of the cultural resource or alteration of the character of the resource's setting when that character contributes to the resource's qualifications for the National Register of Historic Places (NRHP), CRHR, or significance under CEQA.
- Introduction of visual, audible, olfactory, or atmospheric elements that are out of character with the resource or changes that may alter its setting.
- Disproportionate impacts to places that are linked to tribal collective identities.
- Disproportionate impacts to places that play an essential role in the perpetuation of the generations.

While impacts to resources of tribal concern would be discussed on a project-specific basis, development for solar, wind, and geothermal projects and their associated transmission lines share many of the same types of impacts. Certain activities associated with energy development have a greater potential for adversely affecting resources of tribal concern than others. Earthmoving activities (e.g., grading and digging) may have the highest potential for disturbing or destroying these resources; however, pedestrian and vehicular traffic and indirect impacts of earthmoving activities, such as soil erosion, may also have an effect. Visual, auditory, and olfactory impacts on resources of tribal concern may also occur. Many resources of tribal concern are nonrenewable and, once damaged or destroyed, may not be recoverable.

Impacts associated with tribal process concerns include those that place disproportionate stress upon services offered by tribal governments and organizations to their members. In particular, this includes stress on those individuals and departments that participate in the NEPA, Section 106, and CEQA process.

IV.9.2.1 Impacts of Renewable Energy and Transmission Development

This section describes the potential effects of all plan components on resources of cultural and spiritual importance to tribes, including site characterization, construction and decommissioning, and operation and maintenance.

IV.9.2.1.1 Impacts of Site Characterization

Activities associated with preconstruction site characterization for renewable energy development generally require relatively little ground disturbance when compared with what might actually be constructed on a proposed project site, so these activities are unlikely to result in destruction of or physical damage to resources of tribal concern. However, site characterization activities could include geotechnical borings, installation of temporary meteorological towers, installation of security measures and fencing, access roads, and staging areas. These activities could impact resources of tribal concern.

IV.9.2.1.2 Impacts of Construction and Decommissioning

Site construction activities have the greatest potential to impact resources of tribal concern because of the increased ground disturbance during this phase. Resources of tribal concern could be impacted in several ways, including the following:

- Disturbance or degradation could result from the vegetation clearing, boring, grading, trenching, and excavation of a project-specific area. Disturbance or degradation could also result from construction of solar panels, wind turbines, geothermal production and injection wells, well field pipelines, meteorological stations, facilities and associated infrastructure, including generator tie-lines, access roads, spur roads, transmission lines, temporary staging and construction areas, and temporary access routes. Revegetation activities after construction can also impact resources of tribal concern, particularly sacred areas or areas used for harvesting traditional resources.
- Degradation and/or destruction could result from the alteration of topography, alteration of hydrologic patterns, removal of soils, erosion of soils, runoff into and sedimentation of adjacent areas, and oil or other contaminant spills if resources are on or near a project-specific area. Such degradation could occur both within the project footprint and in areas downslope or downstream. Agents of erosion and sedimentation include wind, water, downslope movements, and human and wildlife activities.
- Increases in human access and subsequent disturbance of resources of tribal concern could result from the establishment of corridors or facilities in otherwise intact and inaccessible areas. Increased human access exposes these resources to a greater

probability of impacts. These impacts include off-highway vehicle tracks, looting, unauthorized collection of artifacts, vandalism, trampling, and inadvertent destruction of unrecognized resources.

- Visual degradation of settings associated with resources of tribal concern could result from the presence of a renewable energy development and associated land disturbances and ancillary facilities. Large areas of exposed ground surface, increased dust, and the presence of large-scale machinery, equipment, and vehicles could contribute to an adverse impact.

Differences in water use and discharge among the solar technologies are not likely to be a factor in determining levels of impact of surface runoff and possible effects on resources of tribal concern. However, depending on the source of water for solar technologies using cooling towers or steam generators, drawdown of surface water levels could increase the potential for erosion in some localities and inadvertently expose resources of tribal concern along stream banks or lakeshores. Changes in water levels could result in changes to native vegetation (see Chapter IV.7, Biological Resources, and Chapter IV.5, Flood, Hydrology and Drainage), which could affect traditional gathering locations or traditional cultural properties (including golden eagle nesting and foraging habitat). Land subsidence as a result of withdrawing groundwater could also impact resources of tribal concern.

Impacts specific to geothermal energy development are related to visual and sensory issues. If hot springs of tribal significance are near the geothermal wells, the temperature and water level of the hot springs may be affected by drilling operations. If the pipelines required from wells are constructed above ground on steel supports, they could result in a visual impact to tribal resources. In addition, as wells are depleted, replacement wells may need to be drilled to supply enough geothermal fluid and sufficient temperature to maintain the power capacity.

Site decommissioning, reclamation, and abandonment would have the fewest impacts if ground disturbance is confined to the original disturbance during construction. If additional work areas were needed beyond those disturbed during construction, new impacts could be similar to those that would occur during construction. Visual impacts on tribal resources would be mostly removed after decommissioning, as long as the site was restored to its preconstruction state. However, despite the physical removal of equipment and facilities, the impact of a scarred environment would remain in an area sacred or important to tribes or important to other Native American communities. If access roads are left in place, the potential for looting and vandalism would also remain and might even increase because the area may no longer be periodically monitored by an operator.

IV.9.2.1.3 Impacts of Operations and Maintenance

Fewer physical impacts to tribal resources would occur from the operation and maintenance of renewable energy developments, although the duration of visual, auditory, and olfactory effects can be long-lasting but may be limited to the length of project operations. Visual degradation of settings associated with tribal resources could result from the presence of a renewable energy development and associated land disturbances and ancillary facilities. Golden eagles, which some tribes consider sacred, may be killed by operation of wind energy and solar thermal facilities.

IV.9.2.2 Impacts of the Reserve Design

No renewable energy development is allowed in Reserve Design Lands. Therefore, impacts on tribal resources resulting from Reserve Design Lands would be primarily beneficial. However, allowable activities that require ground-disturbing activities, such as habitat restoration that might involve digging holes for plants, could adversely impact tribal resources.

IV.9.2.3 Impacts of BLM Land Use Plan Decisions

IV.9.2.3.1 Impacts of Renewable Energy Development and Transmission on BLM Lands

The typical impacts from the various renewable energy and transmission technologies on BLM lands would be the same as those described in Section IV.9.2.1, Impacts of Renewable Energy and Transmission Development. However, the specific locations in which energy and transmission development would be allowed would be driven by LUPA decisions, which may encourage or restrict development in some areas with high sensitivity for tribal resources.

IV.9.2.3.2 Impacts of BLM Land Designations and Management Actions

Because the BLM LUPA land designations would be managed to protect ecological, historic, cultural, scenic, scientific, and recreation resources and values, they would also confer general protection for tribal resources. While other land uses are allowed within these areas, those other uses must be compatible with the resources and values that the land designation is intended to protect.

Impacts on tribal resources resulting from designations of ACECs, National Landscape Conservation System (NLCS) lands, and wildlife allocations would likely be beneficial as a result of disturbance caps in these areas designed to conserve and protect the resource values. These disturbance caps and other management actions would minimize soil disturbance, erosion, etc., and thereby provide protection for tribal resources. However,

some habitat restoration activities could result in ground disturbance and damage to tribal resources.

Details on allowable uses and management within NLCS lands are presented in the proposed LUPA description in Volume II. Details on the goals, objectives, allowable uses, and management actions for each ACEC and Special Recreation Management Area (SRMA) unit are presented in the LUPA worksheets in Appendix H.

IV.9.2.4 Impacts of Natural Community Conservation Plan and General Conservation Plan

The NCCP would be administered by the California Department of Fish and Wildlife and would apply to the entire Plan Area. The GCP would be administered by the USFWS and would apply to nonfederal lands, a subset of the entire Plan Area; however, renewable energy impacts under the GCP would be limited to nonfederal lands within the DFAs.

IV.9.2.4.1 Natural Community Conservation Plan

The impacts of renewable energy development permitted under the NCCP would be the same as those defined for the Plan-wide impacts, including the typical impacts described in Section IV.9.2, Typical Impacts Common to All Action Alternatives, and for each alternative described in the following sections.

IV.9.2.4.2 General Conservation Plan

The types of impacts resulting from renewable energy development for which incidental take would be permitted on nonfederal lands under the GCP would be the same as those defined for the Plan-wide impacts, including the typical impacts described in Section IV.9.2. However, the locations where these impacts would occur would vary by alternative. Any differences in these impacts that result from the locational differences are described for each alternative.

IV.9.3 Impact Analysis by Alternative

The following sections present impact analysis for the No Action Alternative, the Preferred Alternative, and Alternatives 1 through 4. Each alternative is compared with the Preferred Alternative. The differences among alternatives include:

- The number of NAE acres conserved or potentially impacted by development.
- The number of estimated cultural resources conserved or potentially impacted by development.

- The cultural resources Conservation and Management Actions (CMAs) tied to Section 106 of the National Historic Preservation Act (NHPA) and specifically associated with National Landscape Conservation System land.
- The width of National Scenic and Historic Trail (NSHT) corridors within National Landscape Conservation System land as defined by CMAs.

The number of cultural resources estimated for the entire Plan Area does not change per alternative but rather the boundaries and acreages change. Therefore, the higher the acreage, the more cultural resources are estimated to be impacted or conserved.

IV.9.3.1 No Action Alternative

The No Action Alternative assumes the state's renewable energy goals would be achieved without the DRECP and that renewable energy, transmission development, and mitigation for such projects in the Plan Area would occur on a project-by-project basis in a pattern consistent with past and ongoing renewable energy and transmission projects.

Any areas currently excluded from development by statute, regulation, or proclamation would retain those exclusions. On BLM land, any areas that are administratively excluded would continue to be assessed based on management guidance within BLM local field office land use plans. Without the DRECP, renewable energy development would likely continue without overarching guidance, ultimately resulting in the increased likelihood of cumulative impacts to resources of concern to tribes within the Plan Area.

Under the No Action Alternative, the USFWS would not propose to develop a GCP to streamline future permitting of incidental take of Endangered Species Act-listed species on nonfederal lands resulting from renewable energy projects and associated transmission in the California deserts. In the absence of a federal nexus, project proponents desiring incidental take authorization from USFWS would need to develop Habitat Conservation Plans for their individual permit applications. Similarly, under the No Action Alternative, the USFWS would not propose to issue incidental take permits to the California Energy Commission (CEC) or California State Lands Commission under the GCP.

IV.9.3.1.1 Impacts within the Entire Plan Area in No Action Alternative

IV.9.3.1.1.1 Impacts and Mitigation for Renewable Energy and Transmission Development in No Action Alternative

Impact Assessment

Under the No Action Alternative, there are approximately 9,781,700 acres that could be developed. This figure includes both federal and nonfederal lands and represents nearly

half of the entire Plan Area. Impacts to resources of concern to tribes from this scale of development would be substantial and would be distributed across the Plan Area.

The impacts to resources of concern to tribes in various areas under the No Action Alternative are discussed in the following paragraphs.

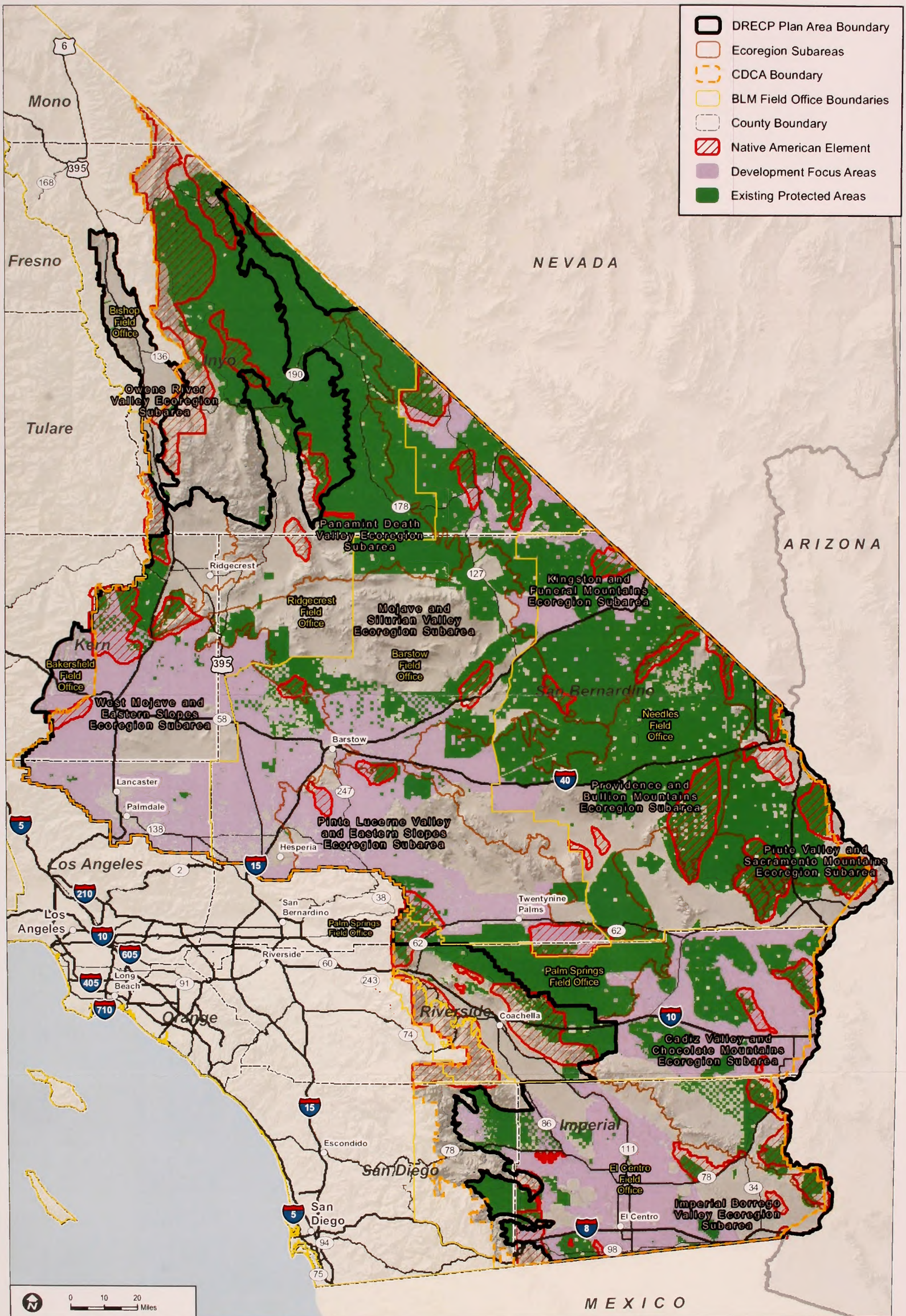
Issues of concern to tribes related to renewable energy development can be separated into two broad categories, physical-world resources and concerns related to the process of the development of renewable energy projects, as defined in Volume III, Section III.9.4.1. The distinction between resources of cultural importance as opposed to ones that are spiritual in nature is not one typically made by tribal people, and therefore no distinction is made here.

Impact TL-1: Plan components could disproportionately affect resources of cultural and spiritual importance to tribes.

Physical-World Resources. All phases of development activities under the No Action Alternative could impact physical-world resources important to tribes (i.e., cultural resources, natural resources, and tribal gathering areas).

Figure IV.9-1, Native American Element (Identified in the 1980 CDCA Plan), No Action Alternative, illustrates the location of NAEs and the components of the No Action Alternative. As described in Section IV.9.1.1, General Methods, the NAE maps were originally developed by BLM in 1980 as part of the CDCA Plan to show "concentrated, sensitive areas of traditional Native American secular and religious uses" (BLM 1980b: NAE). While important, CDCA-designated NAE areas do not represent a complete list of places or areas important to tribes. The No Action Alternative could impact culturally important resources on approximately 8,131 acres of NAE designated lands if renewable energy development were to occur in these designated areas or in locations close enough to indirectly affect NAE areas.

As discussed in Archival Methodology in Section III.8.3, cultural resource density was calculated from the number of known cultural resources divided by the number of acres surveyed within each ecoregion subarea. Because only a fraction of the Plan Area has been surveyed, the actual number of cultural resources is most likely underrepresented. These density calculations suggest that approximately 11,689 cultural resource sites may be present and could be impacted (Appendix R2; Section R2.8, Cultural Resources; Table R2.8-1). While NAE designated lands and cultural resource sites are important, the metrics listed above do not represent a complete list of places or areas important to tribes in the Plan Area. The identification, evaluation, and treatment of resources important to tribes would need to be conducted on a project-specific level to ensure that any unidentified resources are taken into account.



Sources: ESRI (2014); CEC (2013); BLM (2013); CDFW (2013); USFWS (2013)

FIGURE IV.9-1

Native American Element (Identified in the 1980 CDCAP), No Action Alternative

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Impact TL-2: Costs associated with the participation in environmental documents required by the Plan would be disproportionately borne by tribal governments and organizations.

- **Process-Related Concerns**. Section III.9.4.1 identifies issues of concern to tribes as they relate to the process of renewable energy development and environmental review. These issues include consultation, ethnography, document review, confidentiality, monitoring, repatriation, access, and environmental justice. The DRECP identifies methods and best practices for consulting with and engaging tribes in meaningful dialogue in an effort to reach mutually agreeable outcomes regarding all phases of project development and potential impacts and treatment of resources important to tribes. Under the No Action Alternative, these methods and best practices may not be identified, thus increasing the potential for greater impacts from future projects.

Laws and Regulations

- Existing laws and regulations may reduce the impacts of renewable energy development projects in the absence of the DRECP. Relevant regulations are described in Section IV.9.1, Approach to Impact Analysis. These laws may aid in reducing impacts of renewable energy development projects in the absence of the DRECP but are not mitigation measures. Additionally, in no case do they provide a governing body the right to prohibit actions, so long as those actions are taken into account and treatment options are developed among consulting parties to resolve those adverse effects that would result from renewable energy development. Note that because this Environmental Impact Report/Environmental Impact Statement addresses amendments to BLM's land use plans, these plans are addressed separately and are not included in this section.

Design Features from the Solar Programmatic Environmental Impact Statement

In addition to the regulations described previously, several design features identified in BLM's Solar PEIS are in effect now within the Plan Area on BLM managed land for solar projects. These design features help avoid or minimize impacts to cultural resources and tribal concerns prior to the development of project specific mitigation measures. These design features would help avoid, minimize, or mitigate potential impacts on cultural resources and tribal concerns. They are presented by project phase or activity: (1) general design features; (2) site characterization, siting and design, and construction; (3) operations and maintenance; and (4) reclamation and decommissioning (Appendix W). These are identified and discussed in Sections 5.16.1 and 5.16.2 of the Draft and Final Solar PEIS and are presented as direct quotes in this document in Section IV.9.3.1.1, Impacts

Within the Entire Plan Area in No Action Alternative. Design features related to cultural resources may also be relevant to Native American concerns. These were identified and discussed in Sections 5.15.1 and 5.15.2 of the Draft and Final Solar PEIS.

General

NA1-1 BLM shall consult with federally recognized Indian tribes early in the planning process to identify issues and areas of concern regarding any proposed solar energy project as required by the National Historic Preservation Act (NHPA) and other authorities to determine whether construction and operation of a project is likely to disturb traditional cultural properties or sacred sites, impede access to culturally important locations, disrupt traditional cultural practices, affect movements of animals important to tribes, or visually affect culturally important landscapes.

a) Identifying issues and areas of concern to federally recognized Indian tribes shall include, but is not limited to, the following:

- Covering planning, construction, operation, and reclamation activities during consultation. Agreements or understandings reached with affected tribes shall be carried out in accordance with the terms of MOAs or State Specific Procedures as defined within the Solar PA [Programmatic Agreement].
- BLM consulting with affected Indian tribes during the Section 106 process at the points specified in the Solar PA.
- BLM consulting with Indian tribes under the terms of the Native American Graves Protection and Repatriation Act (NAGRA). Any planning for treatment of historic properties or mitigation will take such consultations into account.
- BLM seeking, during consultation, to develop agreements with affected tribes on how to appropriately respond to input and concerns in advance to save time and avoid confusion.

b) Methods to minimize issues and areas of concern to federally recognized Indian tribes may include, but are not limited to, the following:

- Employing standard noise design features for solar facilities located near sacred sites to minimize the impacts of noise on culturally significant areas.
- Employing health and safety design features for the general public for solar facilities located near Native American traditional use

areas in order to minimize potential health and safety impacts on Native Americans.

- Avoiding known human burial sites. Where there is a reasonable probability of encountering undetected human remains and associated funerary objects by a solar energy project, BLM will carry out discussions with Indian tribes before the project is authorized, in order to provide general guidance on the treatment of any cultural items (as defined by NAGPRA) that might be exposed.
- Avoiding visual intrusion on sacred sites through the selection of the solar facility location and solar technology. When complete avoidance is not practicable or economically feasible, BLM shall engage in timely and meaningful consultation with the affected tribe(s) and shall attempt to formulate a mutually acceptable plan to mitigate or reduce the adverse effects.
- Avoiding rock art (panels of petroglyphs and/or pictographs). These panels may be just one component of a larger sacred landscape, in which avoidance of all impacts may not be possible. Mitigation plans for eliminating or reducing potential impacts on rock art shall be formulated in consultation with the appropriate tribal cultural authorities.
- Avoiding springs and other water sources that are or may be sacred or culturally important. If it is necessary for construction, maintenance, or operational activities to take place in proximity to springs or other water sources, appropriate measures, such as the use of geotextiles or silt fencing, shall be taken to prevent silt from degrading water sources. The effectiveness of these mitigating barriers shall be monitored. Measures for preventing water depletion impacts on springs shall also be employed. Particular mitigations shall be determined in consultation with the appropriate Indian tribe(s).
- Avoiding culturally important plant species. When it is not possible to avoid affecting these plant resources, consultations shall be undertaken with the affected Indian tribe(s). If the species is available elsewhere on agency-managed lands, guaranteed access may suffice. For rare or less-common species, establishing (transplanting) or propagating an equal amount of the plant resource elsewhere on agency-managed land accessible to the affected tribe may be acceptable (e.g., for mesquite groves and rice grass fields, identified as tribally important plant species in the ethnographic studies).

- Avoiding culturally important wildlife species and their habitats. When it is not possible to avoid these habitats, solar facilities shall be designed to minimize impacts on game trails, migration routes, and nesting and breeding areas of tribally important species. Mitigation and monitoring procedures shall be developed in consultation with the affected tribe(s).
- Securing a performance and reclamation bond for all solar energy generation facilities to ensure compliance with the terms and conditions of the ROW authorization. When establishing bond amounts and conditions, the BLM authorized officer shall require coverage of all expenses tied to identification, protection, and mitigation of cultural resources of concern to Indian tribes. These may include, but are not limited to, costs for ethnographic studies, inventory, testing, geomorphological studies, data recovery, curation, monitoring, treatment of damaged sites, and generation and submission of reports (see ROW authorization policies, Section 2.2.1.1 of the Final Solar PEIS).

Site Characterization, Siting and Design, Construction

NA2-1 Prior to construction, the project developer shall provide training to contractor personnel whose activities or responsibilities could affect issues and areas of concern to federally recognized Indian tribes.

Operations and Maintenance

NA3-1 Consultation with affected federally recognized Indian tribes shall be ongoing during the life of the project.

NA3-2 The project developer shall train facility personnel regarding their responsibilities to protect any known resources of importance to federally recognized Indian tribes.

Reclamation and Decommissioning

NA4-1 The project developer shall confine reclamation and decommissioning activities to previously disturbed areas and existing access roads to the extent practicable.

NA4-2 The project developer shall return the site to its pre-construction condition, to the extent practicable and approved by BLM.

Mitigation

Effective and comprehensive mitigation measures for impacts to resources of tribal concern can only be accomplished on a project-specific level through formal consultation and engagement with affected tribal communities. Under the No Action Alternative, these project-specific consultation efforts would occur as they have in the past but without the guidance provided regarding consultation in the DRECP. Examples of mitigation measures applicable to any project implemented in the absence of a Plan approval include:

- Employing mitigation measures to reduce impacts as a result of noise, health and safety concerns, traffic, and air quality.
- Complying with federal laws and regulations to produce an agreement document (e.g., Memorandum of Agreement) that would include mitigation measures for the treatment of any NRHP-eligible cultural resources identified.
- Developing a treatment plan for the unanticipated discovery of cultural resources during *all* phases of project development, including procedures for uncovering human remains or suspected human remains.
- Training project personnel to educate them regarding the importance of cultural resources, as well as procedures for avoiding cultural resources and reporting any culturally sensitive resources.
- Using tribal monitors during surveys and ground-disturbing activities.
- Providing training for tribal personnel in the field of cultural resource management and environmental science, such as NHPA Section 106, NEPA, and CEQA training.
- Issuing educational scholarships for tribal communities.
- Conducting archaeological or other cultural resource analyses.
- Conducting biological and hydrologic studies.
- Developing educational curricula to be used in local school settings.
- Conducting public educational outreach, such as kiosks or museums, regarding impacted tribal concerns.
- Offering land exchanges that can provide valuable assets, both cultural and financial, for a tribe to mitigate the loss of assets.
- Establishing conservation easements where individual resources could be preserved.
- Treating the surfaces of introduced materials to reduce the visual impact of such materials.
- Using specific lighting design and operations to reduce impacts to night-sky viewing.

- Avoiding and buffering critical habitat areas, vegetation stands, and nesting areas.
- Restricting the introduction and disposal of any non-native species into areas of native habitat, suitable habitat, and natural or artificial bodies of water.
- Directing nighttime lighting away from animal habitats and shield light downward.
- Implementing construction standards that would prevent toxic chemicals from entering waterways, minimizing the chance of hazardous spills, and implementing measures to prevent excessive and man-made soil deposition and erosion.
- Addressing impacts to cultural resources at a landscape scale following the guidance in *A Strategy for Improving Mitigation Policies and Practices of the Department of the Interior* (Department of the Interior 2014), including:
    - Compensatory mitigation.
    - Coordination with other agencies.
    - Measures to monitor and evaluate the progress of long-term mitigation.
    - Development and maintenance of geospatial information systems for use in identifying existing and potential conservation strategies and development opportunities.

IV.9.3.1.1.2 Impacts from Reserve Design in the No Action Alternative

The No Action Alternative has no reserve design. Without approval of an action alternative, protection of existing Legislatively and Legally Protected Areas, such as wilderness areas, would continue. In addition, under the No Action Alternative, renewable energy projects would continue to be evaluated and approved with project-specific mitigation requirements.

Under the No Action Alternative, approximately 63% of the NAEs (1,043,601 acres) identified in the 1980 CDCA are within existing BLM-protected lands or BLM land designations (such as ACECs) (Table R2.9-2 Appendix R2). While these do not represent a complete list of places or areas important to tribes, renewable resource developments within these lands would be reviewed on a project-by-project basis.

IV.9.3.1.2 Impacts on BLM Lands of Existing BLM Land Use Plans in No Action Alternative

Under the No Action Alternative, the existing land management plans within the Plan Area would continue to allow for renewable energy and transmission development within acceptable land designations, including Solar Energy Zones and Solar Variance Lands. Each of these projects would require LUPAs prior to BLM approval if they are sited outside the Solar Energy Zones and Solar Variance Lands.

Table R2.9-3 presents the NAE acres with the available development areas on BLM Lands under the No Action Alternative. Of the 2,069,755 NAE acres, 5,816 acres would be impacted by future projects. The majority of the NAE acres (4,872) would be in solar energy.

Table R2.9-4 presents the NAE acres within existing ACECs and SRMAs. There are 1,756 NAE acres within existing SRMAs and 515,272 NAE acres within existing ACECs. Renewable energy development within existing ACECs, wildlife allocations, and SRMAs would continue to be reviewed on a project-by-project basis.

IV.9.3.1.3 Impacts of Natural Community Conservation Plan in No Action Alternative

The NCCP would apply to all lands within the Plan Area. In the absence of Plan implementation, the NCCP would not be approved; and no incidental take permits would be issued under the NCCP. Projects would continue to be considered by the appropriate lead agency on an individual basis. The impacts that would occur in the absence of the NCCP would be the same as those described in Section IV.9.3.1.1.1, Impacts and Mitigation for Renewable Energy and Transmission Development in No Action Alternative (Plan-wide analysis).

IV.9.3.1.4 Impacts of General Conservation Plan in No Action Alternative

As described in Appendix M, the GCP would apply to nonfederal lands in the Plan Area. In the absence of Plan implementation, the GCP would not be approved; and no incidental take permits would be issued under the GCP. Projects would continue to be considered by the USFWS on an individual basis. The impacts that would occur in the absence of the GCP would be the same as those described in Section IV.9.3.1.1.1 (Plan-wide analysis) but would be specific to nonfederal lands within the Plan Area.

IV.9.3.1.5 Impacts Outside the Plan Area in No Action Alternative

Outside the Plan Area, additional transmission lines would be needed to deliver the additional renewable energy to load centers (areas of high demand). It is assumed that new transmission lines outside the Plan Area would use existing transmission corridors between the Plan Area and existing substations in the more populated coastal areas of the state. The areas outside the Plan Area through which new transmission lines might be constructed are San Diego, Los Angeles, North Palm Springs–Riverside, and the Central Valley.

IV.9.3.1.5.1 Impacts of Transmission Outside the Plan Area

The application of mitigation measures developed under NHPA Section 106 and the CEC siting process would avoid, reduce, or mitigate the potential for adverse impacts of transmission line development on resources of interest to tribes. Section 106 and CEC

siting process consultations between BLM, CEC, the State Historic Preservation Officer, appropriate tribes, and other consulting parties would be required. Ongoing tribal consultation, in accordance with NHPA/CEQA and other relevant state legislation, would help determine areas of sensitivity, appropriate survey and mitigation needs, and other issues of concern such as access rights or disruption of cultural practices.

Impact TL-1: Plan components could disproportionately affect resources of cultural and spiritual importance to tribes.

Resources of concern to tribes relate to both process and the physical world, as outlined in Volume III, Section III.9.3. Damage or alteration of resources of interest to tribes could result from all phases of transmission line development outside the Plan Area. Resources identified as those related to the physical world could be impacted by the alteration, movement, or destruction of traditionally important cultural resources, including both direct and indirect effects. Natural resources with important cultural values for tribes could be disturbed, removed, displaced, or destroyed. Resources identified as those related to process could be affected by a lack of meaningful consultation, which could result from inadequate information exchange between parties, not consulting with the appropriate group or groups, not allotting enough time for adequate consultation, and holding consultation meetings in locations that make it difficult for all parties to attend.

Impact TL-2: Costs associated with the participation in environmental documents required by the Plan would be disproportionately borne by tribal governments and organizations.

The development of renewable energy projects could impose burdens on tribal governments and other organizations related to their participation in the NEPA or CEQA processes or in NHPA Section 106 consultation.

IV.9.3.1.5.2 Impacts of Existing BLM Land Use Plans Outside the Plan Area

Under the No Action Alternative, the existing BLM CDCA land use plans would continue to be implemented on CDCA lands. Renewable energy projects would continue to be developed through BLM's existing policies. Impacts on tribal resources would be of the types described in Section IV.9.2.1, with similar mitigation measures being included in NEPA and CEQA documents on a case-by-case basis.

IV.9.3.1.6 CEQA Significance Determination: No Action Alternative

TL-1: Plan components could disproportionately affect resources of cultural and spiritual importance to tribes.

Resources of concern to tribes relate to both process and the physical world, as outlined in Volume III, Section III.9.3. In the No Action Alternative, impacts could result from all phases of renewable energy development including site characterization, construction and decommissioning, and operation and maintenance.

Resources identified as those related to the physical world could be impacted by the alteration, movement, or destruction of traditionally important cultural resources, including both direct and indirect effects. Natural resources with important cultural values for tribes could be disturbed, removed, displaced, or destroyed.

Resources identified as those related to process could be affected by a lack of meaningful consultation, which could result from inadequate information exchange between parties, not consulting with the appropriate group or groups, not allotting enough time for adequate consultation, and holding consultation meetings in locations that make it difficult for all parties to attend. Other examples of impacts to process concerns could include breaches of confidentiality, providing inadequate time for the review of environmental documents, not including cultural resource monitors during survey work and ground-disturbing activities, impeding access to culturally important areas, and not repatriating culturally important resources such as human remains and associated grave goods.

The No Action Alternative incorporates no new conservation actions, but there would be continued avoidance of existing Legislatively and Legally Protected Areas.

Mitigation measures, such as those identified in Section IV.9.3.1.1.1, would lessen the effects of renewable energy development on resources of concern to tribes. However, even with the implementation of these mitigation measures, the impacts to resources of concern to tribes would be significant and unavoidable.

Despite the conservation of some resources of concern to tribes through the continued protection of Legislatively and Legally Protected Areas, the traditional tribal world view considers the cultural and spiritual value of the resource and not the total number of impacted resources. Thus, the conservation of some significant resources of concern to tribes does not alleviate the significant and adverse effects on other resources.

Impact TL-2: Costs associated with the participation in environmental documents required by the Plan would be disproportionately borne by tribal governments and organizations.

In addition to the impacts described above, the No Action Alternative would create disproportionate impacts to tribal communities such as air quality, traffic, or noise. Impact TL-2 would be lessened with implementation of mitigation measures for control of air emissions, traffic, and noise; but the specific financial impacts associated with participating in CEQA, NEPA, and consultation processes would remain significant and unmitigated.

IV.9.3.2 Preferred Alternative

IV.9.3.2.1 Plan-wide Impacts of Implementing the DRECP: Preferred Alternative

IV.9.3.2.1.1 Plan-wide Impacts and Mitigation Measures from Renewable Energy and Transmission Development

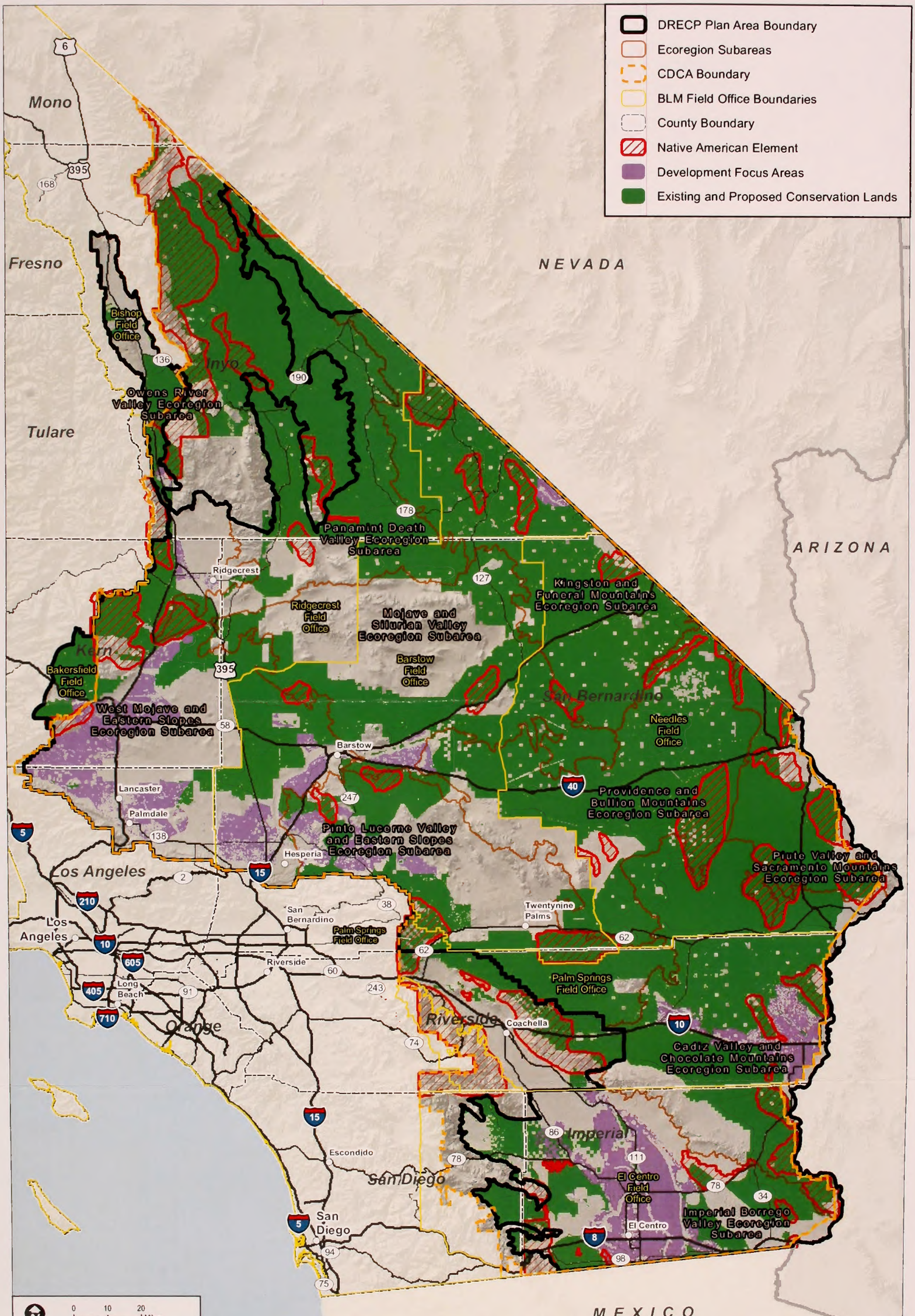
Impact Assessment

Renewable energy development activities covered by the DRECP would be confined to DFAs. The Preferred Alternative could directly impact culturally important resources on 1,994 acres of lands classified as NAEs and an estimated 87,881 archaeological and built-environment resources (see Tables R2.9-6 and R2.8-4). Traditional cultural properties and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a more qualitative manner. Figure IV.9 2, Native American Element (Identified in the 1980 CDCA Plan), Preferred Alternative, illustrates the location of NAEs and the components of the Preferred Alternative.

While NAE-designated lands and cultural resource sites are important, the metrics listed above do not represent a complete list of places or areas important to tribes in the Plan Area. The identification, evaluation, and treatment of resources important to tribes would need to be conducted on a project-specific level to ensure that any unidentified resources are identified and appropriate mitigation is developed.

Impact TL-1: Plan components could disproportionately affect resources of cultural and spiritual importance to tribes.

As described in more detail in Section IV.9.2, all phases of renewable energy development under all of the alternatives could affect resources of cultural and spiritual importance to tribes.



Sources: ESRI (2014); CEC (2013); BLM (2013); CDFW (2013); USFWS (2013)

FIGURE IV.9-2

Native American Element (Identified in the 1980 CDCAP), Preferred Alternative

Draft DRECP and EIR/EIS

August 2014

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Impact TL-2: Costs associated with the participation in environmental documents required by the Plan would be disproportionately borne by tribal governments and organizations.

The processes required to develop renewable energy projects can disproportionately affect tribal governments and organizations due the cost of participation.

Impacts in Study Area Lands

Study Area Lands refer to three categories of lands: Future Assessment Areas (FAAs), Special Analysis Areas (SAAs), and DRECP Variance Lands. Development in any of the Study Area Lands could adversely impact resources important to tribes.

Future Assessment Areas. Lands within FAAs are neither reserve lands nor DFAs; they are simply areas that are deferred for future assessment. The future assessment will determine their suitability for renewable energy development or ecological conservation. If renewable energy development occurs on FAA lands, a LUPA would not be required. FAAs for each alternative are included and located as shown in Table IV.1-2 and Figure II.3-1 in Volume II. The FAAs represent areas where renewable energy development or inclusion in the reserve design could be implemented through an amendment to the DRECP, but additional assessment would be needed.

Because most of the FAAs are presented as "undesignated areas" in the action alternatives, there would be no difference between the FAAs in the Preferred Alternative except that renewable development in an FAA would not require a BLM LUPA; so the environmental review process would be somewhat simpler than if the location were left undesignated.

There are 128,000 acres of FAAs in the Preferred Alternative (Table IV.1-2). Of these, 49,934 acres are also NAE acres. The majority of these (41,923 acres) are within the West Mojave and Eastern Slopes ecoregion subarea, and another 8,011 acres are in the Providence and Bullion Mountains ecoregion subarea. These areas also are estimated to contain 999 archaeological and built-environment resources. While important, CDCA-designated NAE areas do not represent a complete list of places or areas important to tribes within the FAAs. Under the Preferred Alternative, 2,560 archaeological and built-environment resources are estimated to be within FAAs. Traditional cultural properties and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a more qualitative manner.

Special Analysis Areas (SAAs). There are two areas defined as SAAs in the Preferred Alternative, representing areas subject to ongoing analysis. These areas (in the Silurian Valley and just west of U.S. Route 395 in Kern County) cover 42,000 acres (Table IV.1-3),

have high value for renewable energy development, and have high value for ecological and cultural conservation and recreation. SAA lands are expected to be designated in the Final Environmental Impact Report/Environmental Impact Statement as either DFAs or included in the reserve design/Conservation Designation. No NAEs are present within SAA lands in the Preferred Alternative. While important, CDCA-designated NAE areas do not represent a complete list of places or areas important to tribes within the SAAs. Under the Preferred Alternative, 840 archaeological and built-environment resources are estimated to be within SAAs. Traditional cultural properties and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a more qualitative manner.

DRECP Variance Lands. These lands represent the BLM Solar PEIS Variance Lands as screened for the DRECP and Environmental Impact Report/Environmental Impact Statement based on BLM screening criteria. Covered Activities could be permitted for NCCP purposes only through an NCCP plan amendment. However, development of renewable energy on Variance Lands would not require a BLM LUPA; so the environmental review process would be somewhat simpler than if the location were left undesignated.

Under the Preferred Alternative, there would be 13,000 acres of Variance Lands (Table IV.1-4). An estimated 260 archaeological and built-environment resources are present. These overlap with 53,781 NAE acres: 3,745 acres in the Kingston and Funeral Mountains ecoregion subarea, 8,113 acres in the Providence and Bullion Mountains ecoregion subarea, and 41,923 acres in the Western Mojave and the Eastern Slopes ecoregion subarea. An estimated 1,076 archaeological and built-environment resources are in this area. Traditional cultural properties and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a more qualitative manner.

Impact Reduction Strategies and Mitigation

The implementation of the Plan under the Preferred Alternative would result in conservation of some desert lands as well as the development of renewable energy generation and transmission facilities on other lands. The impacts of the renewable energy development covered by the Plan would be lessened in several ways. The Plan incorporates CMAs for each alternative (defined in this section for the Preferred Alternative), as well as specific biological reserve design components and LUPA components. In addition, the implementation of existing laws, orders, regulations, and standards would reduce the impacts of project development.

Despite the fact that land would be conserved under the Preferred Alternative, and some of these conserved lands would contain known NAE areas and cultural resources, there would

still be damage, destruction, or alteration to unknown NAE areas and cultural resources. Because the traditional tribal world-view typically values cultural and spiritual resources as a whole, the conservation of some NAE areas and cultural resources would not alleviate the damage, destruction, or alteration of others in DFAs.

Conservation and Management Actions

The conservation strategy for the Preferred Alternative (presented in Volume II, Section II.3.1.1) defines a large number of specific actions that would reduce the impacts of the Preferred Alternative related to tribal resource values. The conservation strategy includes a definition of the reserve design and specific CMAs for the Preferred Alternative. While the CMAs were developed for BLM lands only, this analysis assumes that all CMAs would be applied also to nonfederal lands.

While CMAs would help reduce impacts to resources of concern to tribes, these measures would be most effective when developed during consultation and meaningful engagement with tribal communities. As described in Chapter III.9, this consultation regarding the DRECP has been under way for some time and would continue throughout the CEQA/NEPA process.

CMAs designed specifically for tribal concerns do not vary considerably by alternative. However, some cultural resources CMAs would conserve resources of interest to tribes, and are therefore relevant here.

Following are CMAs developed specifically for BLM lands that could reduce impacts to resources of Native American concern (Section III.9.2). These CMAs would also be applied to nonfederal lands but modified to meet the requirements of state law and CEC or other state lead agencies. Unless otherwise noted, all the CMAs for the Preferred Alternative also apply to Alternatives 1 through 4. However, NSHT CMAs associated with NLCS lands and ACECs vary by alternative.

<u>Planning Area–Wide National Conservation Land Management Direction</u>

- **Cultural Resources** – With the exception of research, no actions that would result in adverse effects to historic properties, as defined under Section 106 of National Historic Preservation Act and the implementing regulations at 36 CFR Part 800, will be authorized.

National Trails

DRECP will make decisions for three National Trails (Pacific Crest National Scenic Trail, Old Spanish National Historic Trail and the Juan Bautista de Anza National Historic Trail) to designate the National Trail Management Corridors and management actions

Conservation and Management Actions for National Trails

- **Management Corridor Width** (see also maps): Establish a National Trail Management Corridor width generally 5 miles from the centerline of the trail.
- **Management of Trail Corridors** – Manage National Trails as components of BLM's NLCS. Where National Trails overlap other National Conservation Lands, the more protective CMAs or land use allocations will apply.
- **Lands and Realty**
  - **Land Use Authorizations**
    - **Site Authorization –** NSHT Management Corridors would be avoidance areas. Sites authorizations would require mitigation/compensation resulting in net benefit to the NSHT.
    - **Linear Rights-of-Way –** NSHT Management Corridors would be avoidance areas except in designated transmission corridors. Exclude cultural landscapes, high potential historic sites, and high potential route segments identified along historic trails corridors from transmission except in approved transmission corridors. Where development affects trail management corridors, an analysis must be performed to ensure that it does not substantially interfere with the nature and purposes of the trail, and that mitigation/compensation results in a net benefit to the trail.
    - **Renewable Energy Rights-of-Way** – Exclude cultural landscapes, high potential historic sites, and high potential route segments identified along historic trails corridors from transmission except in approved DFAs and transmission corridors. Where development affects trail management corridors, an analysis must be performed to ensure that it does not substantially interfere with the nature and purposes of the trail, and that mitigation/compensation results in a net benefit to the trail.
  - **Land Tenure**
    - Exchange would be permitted if it results in net benefit to NSHT values.
    - Purchase and donations would be also be permitted to acquire lands within NSHT.

- **Minerals**
  - **Locatable Minerals** – For the purposes of locatable minerals, National Trail corridors would be treated as "controlled" or "limited" use areas in the CDCA, requiring a Plan of Operations for greater than casual use under 43 CFR 3809.11.
  - **Saleable Minerals** – NSHT Management Corridors would be available for saleable mineral development if it does not substantially interfere with nature and purpose of NSHT, and would require mitigation/compensation must result in net benefit to NSHT values
  - **Leasable Minerals** – NSHT Management Corridors would be available for leasing with a No Surface Occupancy stipulation. Surface coal mining would not be allowed within the NSHT Management Corridors.
- **Recreation and Visitor Services –** Commercial and competitive Special Recreation Permits would be considered on a case-by –case basis for activities consistent with the values of the National Conservation lands unit.
- **Cultural Resources**
  - Undertakings that result in adverse effects to NHTs and NSTs that are historic properties as defined under Section 106 of National Historic Preservation Act and the implementing regulations at 36 CFR Part 800 will not be authorized.
  - All NHT segments will be assumed to contain remnants, artifacts and other properties eligible for the National Register of Historic Places, pending evaluation.
- **Visual Resources Management** – All NSHT Management Corridors will be designated as VRM class II, except within approved transmission corridors (VRM Class III) and DFAs (VRM Class IV). However, state of the art VRM BMPs for renewable energy will be employed commensurate with the protection of nationally significant scenic resources and cultural landscapes to minimize the level of intrusion and protect trail settings.
- **Mitigation Requirements** – If a segment of a National Trail or proposed NHT traverses a DFA, it will be subject to mitigation for impacts to trail features, including, but not limited to, and not in priority order: avoidance, the cost of trail relocation, on-site mitigation and off-site mitigation. Compensation can include acquisition or restoration of corridor features and landscapes will be at a minimum of 2:1, and must result in a net benefit to the overall trail corridor. Development of high potential route segments must not substantially interfere with the nature and purposes of the National Trail.

BLM-Specific Conservation and Management Actions

Cultural and Tribal CMAs for the Entire Planning Area

- Continue working with the California Office of Historic Preservation to develop and implement a program for record keeping and tracking agency actions that meets the needs of BLM and OHP organizations pursuant to existing State and National agreements and regulation (BLM State Protocol Agreement; BLM National Programmatic Agreement).
- Using relevant archaeological and environmental data, identify priority geographic areas for new field inventory, based upon a probability for unrecorded significant resources and other considerations.
- Identify places of traditional cultural and religious importance to federally recognized tribes and maintain access to these locations for traditional use.
- Design BLM actions and authorizations to minimize impacts on cultural resources including places of traditional cultural and religious importance to federally recognized tribes.
- Develop interpretive material to correspond with recreational uses to educate the public about protecting cultural resources and avoiding disturbance of archaeological sites.
- Develop partnerships to assist in the training of groups and individuals to participate in site stewardship programs.
- Coordinate with visual resources staff to ensure VRM classes consider cultural resources and tribal consultation to include landmarks of cultural significance to Native Americans (TCPs, trails, etc.).
- Conduct regular contact and consultation with federally recognized Tribes and individuals, consistent with statute, regulation and policy.
- Promote desert vegetation communities by compensatory mitigation, off-site mitigation, and other means for Native American vegetation collection.
- Promote and protect desert fan palm oasis communities by compensatory mitigation, off-site mitigation, and other means for Native American cultural values.
- Promote and protect desert microphyll woodland communities by compensatory mitigation, off-site mitigation, and other means for Native American cultural values.

Other CMAs for the Entire Planning Area

- **Biological Resources.** CMAs developed for biological resources could reduce impacts to Native American resources from soil erosion, project runoff, oil or other contaminant spill, and the introduction of invasive species during restoration and revegetation. The CMAs would apply to all action alternatives (Preferred, Alternatives 1 through 4).
- **Golden Eagles.** Based on the 2013 data, no more than 15 golden eagles would be allowed to be taken in 2014 by any activities within the Plan Area. On an annual basis, the USFWS will evaluate the population status and new information on the amount of ongoing take of eagles within the local-area population of golden eagles. This information will be used to update the amount of take that will be authorized each year. CMAs would be implemented to avoid and minimize the take of golden eagles from the siting, construction, operations, and decommissioning of Covered Activities under the DRECP. The approach to determining golden eagle coverage in the DRECP is described in further detail in Appendix H.
- **Air Resources.** Implementation of CMAs related to air quality could reduce temporary impacts to the visual setting of resources of Native American concern, such as traditional cultural properties and cultural landscapes, from fugitive dust by requiring that air quality standards for fugitive dust exceed local standards and apply seven days a week. In addition, these CMAs would require the development of a fugitive dust control plan (Section II.3.2.3.1.2).
- **Comprehensive Trails and Travel Management.** Implementation of CMAs related to maintaining and managing adequate roads and trails could reduce impacts to trails and trail segments important to Native Americans by prohibiting large-scale disturbance within 0.5 mile of the centerline of Tier 2 roads/primitive roads and 300 feet from the centerline of Tier 3 primitive roads/trails. In addition, this would require the management of road, primitive road, and trail access to and within SRMAs, Extensive Recreation Management Areas, Off-Highway Vehicle Open Areas, and Tier 1, 2, and 3 roads.
- **Mineral Resources.** Implementation of CMAs related to mineral resources would reduce the loss of availability and access to mineral resources of importance to Native Americans by requiring agencies to analyze and consider the mineral resource value in High Potential Mineral Areas in the renewable energy project analysis.
- **Paleontological Resources**. Implementation of CMAs related to paleontological resources would protect unique paleontological resources important to Native Americans by requiring the applicant to prepare paleontological sensitivity maps consistent with the Potential Fossil Yield Classification for ROW prior to NEPA

analysis. These CMAs would also ensure proper data recovery of significant paleontological resources where impacts cannot be avoided or mitigated and require the presence of paleontological surveys and construction monitors for large-scale projects in the Chuckwalla Valley.

- **Soil, Water, and Water-Dependent Resources.** Implementation of CMAs related to soil, water, and water-dependent resources would reduce impacts to water resources important to Native American tribes by providing appropriate protective measures to protect the quantity and quality of all water resources (including ephemeral, intermittent, and perennial water bodies) and any associated riparian habitat. In addition, these CMAs, require the preparation of a Water Monitoring, Management, and Mitigation Plan that shall be approved by the authorizing officer prior to the development, extraction, injection, or consumptive use of any water resource.
- **Visual Resources.** Implementation of CMAs related to visual resources would reduce impacts to the visual setting of resources of Native American concern, including traditional cultural properties and sacred sites, landscapes, and archaeological resources, by ensuring that (1) development within each VRM Class polygon meets the VRM objectives as measured through a visual contrast rating process and (2) transmission facilities are designed to create the least amount of visual contrast.

Cultural and Tribal CMAs in Development Focus Areas and DRECP Study Areas, and Transmission Corridors

The following CMAs will apply to renewable energy and transmission ROWs:

BLM developed and maintains a geodatabase for Cultural Resources and Cultural Resources investigations in a Geographic Information System (GIS). The geodatabase is regularly updated with newly recorded and re-recorded resource and investigation data. However, while the geodatabase includes location information (feature classes or shapefiles), the associated information about each resource or investigation (attribute data) is limited or inconsistent. As it exists now, the geodatabase cannot be used for predictive analyses like those recommended in *A Strategy for Improving Mitigation Policies and Practices of the Department of the Interior* (Interior 2014). However, with some updates, the geodatabase would be a powerful tool for identifying potential conservation priorities as well as development opportunities. Many of the CMAs below are intended to facilitate the update of BLMs geodatabase, and require its use when the updates are complete.

- Require the applicant to pay all appropriate costs associated with the following processes, through the appropriate BLM funding mechanism:
    - All appropriate costs associated with BLM's analysis of the DRECP geodatabase and other sources for cultural resources sensitivity;

  - All appropriate costs associated with preliminary sensitivity analysis;
  - All appropriate costs associated with the Section 106 process including the identification and defining of cultural resources. These costs may also include logistical, travel, and other support costs incurred by tribes in the consultation process.
  - All appropriate costs associated with updating the DRECP cultural resources geodatabase with project specific results.
- A management fee, defined at a per acre rate and annual escalation provision for the life of the grant, will paid to BLM as partial mitigation for the cumulative effects on cultural resources across the DRECP area and may be used to develop regional research designs and other forms of off-site and compensatory mitigation.
- The management fee rate will be determined through the programmatic Section 106 consultation process that will be completed as part of the DRECP land use plan amendment.
- Demonstrate that results of cultural resources sensitivity, based on the DRECP geodatabase, and other sources, are used as part of the initial planning pre-application process and to select of specific footprints for further consideration.
- Provide a statistically significant sample survey as part of the pre-application process, unless BLM determines the DRECP geodatabase and other sources are adequate to assess cultural resources sensitivity of specific footprints.
- Provide justification in the application why the project considerations merit moving forward if the specific footprint lies within an area identified or forecast as sensitive for cultural resources by BLM.
- Complete the Section 106 Process as specified in 36 CFR Part 800, or via an alternate procedure, allowed for under 36 CFR Part 800.14 prior to issuing a ROD or ROW grant on any utility-scale renewable energy or transmission project. For utility-scale solar energy developments, BLM may follow the Solar PA.
- The Ford Dry Lake Basin and surrounding shoreline up to the 380 foot contour comprises mitigation agreed upon earlier by the Genesis project owners, BLM, CEC, the Colorado River Indian Tribes, and the Ft. Mojave tribe as the proposed Ford Dry Lake National Register Archaeological District and may not be developed.

Cultural and Tribal CMAs for National Conservation Lands and Areas of Critical Environmental Concern

- Survey, identify and record new cultural resources within ACEC boundaries.
- Update records for existing cultural resources within ACECs.

- Develop baseline assessment of specific natural and man-made threats to cultural resources in ACECs (i.e., erosion, looting and vandalism, grazing, OHV).
- Provide on-going monitoring for cultural resources based on the threat assessment.
- Identify, develop or incorporate standard protection measures and best management practices to address threats.
- Where specific threats are identified, implement protection measures consistent with agency Section 106 responsibilities.

Laws and Regulations

Similar to the No Action Alternative, existing laws and regulations would reduce certain impacts of Plan implementation. Relevant regulations are presented in the Regulatory Setting in Volume III. The requirements of relevant laws and regulations are summarized for the No Action Alternative in Section IV.9.3.1.1.1.

Mitigation Measures

After implementation of the CMAs and existing laws and regulations, mitigation measures are recommended to further reduce some of the DRECP's adverse impacts to resources of concern to tribes, as outlined in this section. Some of these mitigation measures may be included in NHPA Section 106 agreement documents (such as programmatic agreements) for specific resources impacted by specific projects or for the Plan Area as a whole. Differences between state and federal legal requirements may result in differences between mitigation measures for resources located on federal land as opposed to those located on other lands and may require close coordination between state and federal lead agencies.

Mitigation Measures for Impact TL-1: Plan components could disproportionately affect resources of cultural and spiritual importance to tribes.

TL-1a **Protect Tribal Resources.** The following actions shall be taken to define and protect resources of value to tribes, including:

- Develop a treatment plan for the unanticipated discovery of cultural resources during all phases of project development, including procedures for uncovering human remains or suspected human remains.
- Train project personnel to avoid cultural resources and report any culturally sensitive resources.
- Employ tribal monitors during cultural resource surveys and ground-disturbing activities.

- Conduct archaeological or other cultural resource analyses.
- Conduct biological or hydrologic analyses.
- Avoid and buffer critical habitat areas, vegetation stands, and nesting areas.
- Restrict the introduction and disposal of non-native species into areas of native habitat, suitable habitat, and natural or artificial bodies of water.
- Direct nighttime lighting away from animal habitats and shield light to focus only downward.
- Implement construction standards that would prevent toxic chemicals from entering waterways, minimize the chance of hazardous spills, and implement measures to prevent excessive and man-made soil deposition and erosion.
- Develop educational curricula to be used in local school settings.
- Conduct public outreach, such as educational kiosks or museums, regarding tribal concerns to educate the public.
- Issue educational scholarships for tribal communities.
- Implement land exchanges.
- Provide training for tribal personnel in historic preservation, such as NHPA Section 106 training.
- Establish conservation easements where individual resources could be preserved.

Mitigation Measures for Impact TL-2: Costs associated with the participation in environmental documents required by the Plan would be disproportionately borne by tribal governments and organizations.

TL-2a **Provide Support to Tribal Governments**. Project proponents shall provide support tribal participation in the CEQA and NEPA process (consultation, ethnography, document review, monitoring, repatriation, access of sacred sites) including:

- Fees for ethnographic interview and consultation.
- Travel costs.
- NEPA, CEQA, and NHPA Section 106 training for tribal personnel.
- Funds to hire and train additional environmental staff to review documents.

- Equipment such as computers and relevant training for tribal personnel in their use.
- High-speed Internet access and relevant training for tribal personnel in its use and maintenance.

IV.9.3.2.1.2 Impacts of the Reserve Design

Under the Preferred Alternative, tribal resources would likely benefit from increased protection of natural resources within conservation areas as well as from the CMAs defined in Section IV.9.2.3.1.1. Proposed ACEC and NLCS designations could provide protection for tribal resources: Disturbance caps in these areas are designed to conserve and protect the resource values, and renewable energy development would be prohibited in these designations. Development in NLCS lands would be limited to 1% of total authorized disturbance, or to the level allowed by collocated ACEC/wildlife allocations, whichever is more restrictive. These disturbance caps and other management actions would minimize surface disturbance and thereby provide protection for cultural resources.

Under the Preferred Alternative, the NAE acres that would fall within Reserve Design Lands are shown in Table R2.9-8 (Appendix R2). With the Preferred Alternative, 80% of NAE acres (1,655,877) would fall within the reserve design and would not be subject to renewable energy development. While important, CDCA-designated NAE areas do not represent a complete list of places or areas important to tribes. Unidentified resources important to tribes may be present.

Under the Preferred Alternative, an estimated 576,735 (or 45% of all known archaeological and built-environment resources) resources would fall within Reserve Design Lands (see Table R2.8-8 in Appendix R2). Traditional cultural properties and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a more qualitative manner. Due to their location within the conservation lands, resources in these areas would not be subject to impacts from renewable energy development.

IV.9.3.2.2 Impacts of DRECP Land Use Plan Amendment on BLM Land: Preferred Alternative

This section addresses two components of effects of the BLM LUPA: the streamlined development of renewable energy and transmission on BLM land under the LUPA and the impacts of the amended land use plans themselves.

IV.9.3.2.2.1 Impacts from Renewable Energy and Transmission Development on BLM Land

Under the Preferred Alternative, 991 NAE acres are within DFA footprints on BLM land (as shown in Table R2.9-9 of Appendix R2). Renewable energy and transmission development could impact this land. This represents less than 0.05% of the NAE acres identified in the 1980 CDCA assessment. NAE areas do not represent a complete list of places or areas important to tribes. Unidentified resources important to tribes may be present.

IV.9.3.2.2.2 Impacts of Changes to BLM Land Designations

The proposed changes to BLM land designations would have both beneficial and adverse effects on tribal resources. Proposed ACEC and NLCS designations would establish disturbance caps in areas designed to conserve and protect resource values, and renewable energy development would be prohibited in these designations. Development in NLCS lands would be limited to 1% of total authorized disturbance, or to the level allowed by collocated ACEC/wildlife allocations, whichever is more restrictive. These disturbance caps and other management actions, including the CMAs listed above, would minimize surface disturbance and thereby provide protection for tribal resources.

Under the Preferred Alternative, NAE acres found within BLM land designations on BLM LUPA lands are shown in Table R2.9-10 (Appendix R2). These designations include NLCS, ACEC, wildlife allocation, SRMA, land with wilderness characteristics, and NSHT Management Corridor. The majority of the NAE acres (433,447) are within the existing and proposed NLCS lands. About 319,952 NAE acres are on existing and proposed ACEC lands. In the Preferred Alternative, the NSHT Management Corridor is 5 miles on either side of the centerline. As a result, an estimated 28,437 cultural resources would be protected. Although important, NAE areas do not represent a complete list of places or areas important to tribes. Unidentified resources important to tribes may be present.

IV.9.3.2.3 Impacts of Natural Community Conservation Plan: Preferred Alternative

The analysis of Covered Activities under the NCCP is equivalent to the Plan-wide analysis of the interagency alternatives. Reserve design features and other conservation actions under the NCCP alternatives represent more detailed categories of the reserve design under the interagency Plan-wide alternatives. These NCCP differences in reserve design features do not affect nonbiological resources analyzed in this document, and the analysis of reserve design and conservation and management actions under the NCCP is therefore equivalent to the Plan-wide analysis of the interagency alternatives, as described in Section IV.9.3.2.1.

IV.9.3.2.4 Impacts of General Conservation Plan

The impacts of the GCP for the Preferred Alternative would be similar to the impacts defined in Section IV.9.3.2.1 for the Plan-wide analysis, but they would occur on nonfederal lands only.

For the Preferred Alternative, 1,004 NAE acres fall within the DFA footprints (see Table R2.9-11 in Appendix R2). This is 0.3% of the 302,795 NAE acres within the GCP lands. Of the GCP lands, approximately 25% (76,654 NAE acres) would be within conservation lands (see Table R2.9-12).

Under the Preferred Alternative, cultural resources found within DFA footprints on GCP lands are shown in Table R.8-11 (Appendix R2). For GCP lands under the Preferred Alternative, an estimated 5,662 archaeological and built-environment resources could fall within the technology footprints in the DFAs. This is 1% of the archaeological and built-environment resources within the GCP lands. Under the Preferred Alternative, archaeological and built-environment resources found within GCP Reserve Design Lands are shown in Table R2.8-12. Of the GCP lands, approximately 13% would be within conservation areas. Traditional cultural properties and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a more qualitative manner.

IV.9.3.2.5 Impacts Outside the Plan Area

IV.9.3.2.5.1 Impacts of Transmission Outside the Plan Area

The impacts of transmission outside the Plan Area on tribal interests would be the same under all alternatives. These impacts are as described for the No Action Alternative in Section IV.9.3.1.5, Impacts of Transmission Outside the Plan Area in No Action Alternative.

IV.9.3.2.5.2 Impacts of BLM LUPA Decisions Outside the Plan Area

Under the Preferred Alternative, NAE acres within BLM land designations outside the Plan Area are shown in Table R2.9-13 (Appendix R2). There are 122,734 NAE acres on proposed NLCS lands, with 108,202 NAE acres on existing and proposed ACEC lands, and 49,393 NAE acres within NSHT Management Corridors. Impacts of BLM land designations outside the Plan Area to NAE acres would be the same as those described in Section IV.9.3.2.1.2.

Under the Preferred Alternative, cultural resources within BLM land designations outside the Plan Area are shown in Table R2.8-13 (Appendix R2). Based on site density, there are 21,920 archaeological and built-environment resources on BLM LUPA lands outside the Plan Area. Of those resources, 4,635 are on proposed NLCS lands, with 5,758 on existing

and proposed ACEC lands and 1,843 within NSHT Management Corridors. Traditional cultural properties and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a more qualitative manner. Impacts of BLM land designations outside the Plan Area on cultural resources would be the same as those described in Section IV.8.3.2.1.2.

IV.9.3.2.6 CEQA Significance Determination for the Preferred Alternative

The Preferred Alternative incorporates a list of conservation actions, and about 80% of NAE acres (1,655,877) would be protected within Reserve Design Lands (Table R2.9-8). The conservation of some resources of concern to tribes through the implementation of CMAs and Reserve Design Lands could reduce the overall impacts of renewable energy development. However, since NAE designated lands do not represent the entirety of places or areas important to tribes in the Plan Area, the identification, evaluation, and treatment of resources important to tribes would need to be conducted on a project-specific level to ensure that any unidentified resources are taken into account. In addition to the CMAs and reserve design for the Preferred Alternative, Mitigation Measures TL-1a and TL-2a present a range of measures that could reduce impacts to resources of interest to tribes.

An estimated 1,526 archaeological and built-environment resources are within the DFA footprints of the Preferred Alternative. Under the Preferred Alternative, an estimated 1,293,507 archaeological and built-environment resources on Reserve Design Lands would be conserved. Traditional cultural properties and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a more qualitative manner. Conservation actions in the Plan would protect all kinds of cultural resources by setting aside land for conservation.

The assessment of impacts TL-1 and TL-2 addresses resources of concern to tribes under both process and the physical world, as outlined in Section III.9.3. In the Preferred Alternative, impacts could result from all phases of renewable energy development: site characterization, construction and decommissioning, and operation and maintenance. See Section IV.9.3.1.6, CEQA Significance for No Action Alternative, for additional details. Even with the implementation of Mitigation Measures TL-1a and TL-2a, the impacts to resources of concern to tribes would be significant and unavoidable.

IV.9.3.2.7 Comparison of the Preferred Alternative with No Action Alternative

Chapter IV.27 presents a comparison of all action alternatives and the No Action Alternative across all disciplines. This section summarizes the comparison of the Preferred Alternative with the No Action Alternative.

IV.9.3.2.7.1 Preferred Alternative Compared with No Action Alternative for Plan-wide DRECP

Table IV.9-1 compares the acres of NAE within DFAs and the reserve design for the Preferred Alternative and the No Action Alternative.

Table IV.9-1
Comparison of Preferred Alternative with the No Action Alternative for Plan-Wide DRECP

	Preferred Alternative	No Action
NAE acres within DFA	1,994	8,131
NAE acres within the reserve design	1,655,877	1,310,098

The Preferred Alternative would impact a fewer number of NAE acres within the DFA footprints than the No Action Alternative. Furthermore, more resources would be conserved in Reserve Design Lands under the Preferred Alternative.

Table IV.9-2
Comparison of Preferred Alternative with the No Action Alternative for Plan-Wide DRECP

	Preferred Alternative	No Action
Number of resources in DFAs	12,543	11,689
Number of resources conserved in Reserve Design Lands or BLM protected lands	576,735	543,265
Plan-wide CMAs (general)	Reduce impacts to cultural resources	Adverse effects will be addressed only through existing laws, regulations, and typical mitigation
Cultural resources CMAs for NCLS lands only	With exception of research, no adverse effects to historic properties authorized.	Adverse effects to historic properties addressed through NHPA Section 106.

Table IV.9-2
Comparison of Preferred Alternative with the No Action Alternative for Plan-Wide DRECP

	Preferred Alternative	No Action
CMAs for National Historic Trails	No adverse effects to NHT and NHT historic properties authorized. All NHT segments assumed to be eligible for NRHP pending evaluation.	Adverse effects to NSHT addressed through NEPA or NHPA Section 106 process as appropriate.
NSHT Management Corridor width and number of resources conserved	5 miles on either side of centerline: 28,437	None

The Preferred Alternative would impact slightly more cultural resources in the DFA footprints than the No Action Alternative. However, significantly more resources would be conserved in Reserve Design Lands and in NSHT Management Corridors. In addition, the CMAs for these resources are significantly more protective than for the No Action Alternative.

Overall, the Preferred Alternative is more protective to NAE lands and cultural resources than the No Action Alternative.

Geographic Distinctions

In this comparison, alternatives are described with regard to (a) the presence or absence of NAE acres in the geographic areas of interest and potential impacts there, and (b) the potential impacts to archaeological and built-environment resources in these same locations.

Under the Preferred Alternative, the Silurian Valley would be an SAA. Under the No Action Alternative, this location would be undesignated. No NAE acres have been identified in this location (Figure III.9-1); however, that does not mean that no resources important to tribes are present. Overall, for each alternative, this location could either be developed or conserved, therefore there is no difference between the alternatives for resources of interest to tribes in this location.

Under the Preferred Alternative, the Hidden Hills area in Inyo County near the Nevada state line would be a DFA. Under the No Action Alternative, this location would be undesignated. Based on previous studies associated with proposed solar project in this location, the Hidden Hills area is known to be very culturally sensitive because of the presence of a segment of the Salt Song Trail, Route 66, and an NSHT. In addition, there are NAE acres in this location (Figure III.9-1). Overall, under the No Action Alternative, this location might

be conserved, therefore the No Action Alternative would be more protective for resources of interest to tribes than the Preferred Alternative.

Under the Preferred Alternative, the Notch in the Park (south of Ivanpah near Mountain Pass) would be an FAA. Under the No Action Alternative, this location would be undesignated. No NAE acres have been identified in this location (Figure III.9-1); however, that does not mean that no resources important to tribes are present. In each alternative, this location could either be developed or conserved, therefore there is no difference between the alternatives for resources of interest to tribes.

Under the Preferred Alternative, the area north of Tehachapi would be an FAA. Under the No Action Alternative, this location would be undesignated. The majority of this area consists of NAE acres (Figure III.9-1). Overall, for each alternative, this location could either be developed or conserved, therefore there is no difference between the alternatives for resources of interest to tribes.

Under the Preferred Alternative, the area east of Twentynine Palms would be an FAA. Under the No Action Alternative, this location would be undesignated. There are NAE acres in this location (Figure III.9-1). Overall, for each alternative, this location could either be developed or conserved, therefore there is no difference between the alternatives for resources of interest to tribes.

Under the Preferred Alternative, the Owens Lake would be a BLM conservation allocation. Under the No Action Alternative, this location would be undesignated. There are NAE acres in this location (Figure III.9-1), and dry lakes in this part of California are known to be very culturally sensitive. In addition, the Owens River Valley ecoregion subarea has the highest density of cultural resources of all of the DRECP ecoregion subareas (1.76 resources per acre). Therefore, the Preferred Alternative would protect more resources of interest to tribes in this location than the No Action Alternative.

Under the Preferred Alternative, Searles Lake between Fort Irwin and China Lake would be undesignated. Under the No Action Alternative, this location would be undesignated. There are NAE acres in this location (Figure III.9-1). Overall, for each alternative this location could either be developed or conserved, therefore there is no difference between the alternatives for resources of interest to tribes.

Under the Preferred Alternative the area along U.S. Route 395, north of Edwards Air Force Base would be an SAA. Under the No Action Alternative, this location would be undesignated. No NAE acres have been identified in this location (Figure III.9-1); however, that does not mean that no resources important to tribes are present. In each alternative, this location could either be developed or conserved, therefore there is no difference between the alternatives for resources of interest to tribes.

IV.9.3.2.7.2 Preferred Alternative Compared With No Action Alternative for the BLM Land Use Plan Amendment

In this section, alternatives are distinguished through the comparison of the number of NAE acres and estimated cultural resources that would be conserved in BLM land designations and the NAE acres and estimated cultural resources in BLM land designations that are also in DFAs and therefore might be impacted by development. While the number of resources conserved by each kind of BLM land designation, cultural resources CMAs apply to NLCS, ACECs, and NSHT Management Corridors; and so the importance of those designations are emphasized here.

Table IV.9-3
Comparison of Preferred Alternative with the
No Action Alternative for the BLM Land Use Plan Amendment

Land Classification	Preferred Alternative NAE acres	No Action N AE acres
SRMA	94,776	1,756
NLCS	433,447	n/a
Existing and proposed ACEC	319,952	515,272
Wildlife allocation	1,356	n/a
Land with wilderness characteristics	46,311	n/a
NSHT Management Corridor	162,358	n/a
BLM LUPA land in DFA footprint	991	n/a

Table IV.9-4
Comparison of Preferred Alternative with the
No Action Alternative for the BLM Land Use Plan Amendment

Land Classification	Preferred Alternative Estimated # of Resources	No Action Estimated # of Resources
SRMA	68,801	52,426
NLCS	176,810	n/a
Existing and proposed ACEC	84,542	87,881
Wildlife allocation	742	n/a
Land with wilderness characteristics	11,237	n/a
NSHT Management Corridor	28,437	n/a
BLM LUPA land in DFA footprint	6,855	n/a

Under the Preferred Alternative, there are fewer NAE acres within the DFA footprint of BLM LUPA lands, and therefore fewer potentially impacted by development, than there would be with the No Action Alternative (Table IV.9-3). The No Action Alternative has no reserve design, but without approval of an action alternative, there would be continued protection of existing Legislatively and Legally Protected Areas such as wilderness areas.

There are more estimated archaeological and built-environment resources protected within BLM LUPA land designations under the Preferred Alternative than under the No Action Alternative (Table IV.9-4). Traditional cultural properties and cultural landscapes are not included in these calculations, but are considered qualitatively instead

Overall, a larger number of NAE acres and cultural resources would be protected more effectively by the Preferred Alternative than the No Action Alternative.

IV.9.3.2.7.3 Preferred Alternative Compared with No Action Alternative for NCCP

The impacts of the NCCP for the Preferred Alternative are the same as those defined in Section IV.9.3.2.1 for the Plan-wide analysis. As a result, the comparison of the Preferred Alternative with the No Action Alternative for the NCCP is the same as described above for Plan-wide DRECP.

IV.9.3.2.7.4 Preferred Alternative Compared with No Action Alternative for the GCP

There would not be a GCP under the No Action Alternative. The No Action Alternative assumes that renewable energy and transmission development and mitigation for such projects in the Plan Area would occur on a project-by-project basis in a pattern consistent with past and ongoing renewable energy and transmission projects.

IV.9.3.3 Alternative 1

IV.9.3.3.1 Plan-wide Impacts of Implementing the DRECP: Alternative 1

IV.9.3.3.1.1 Plan-wide Impacts and Mitigation Measures from Renewable Energy and Transmission Development

Impact Assessment

The general issues of concern to tribes related to renewable energy development for Alternative 1 are the same as those described for typical impacts (Section IV.9.2.1) and for the No Action Alternative (Section IV.9.3.1.1.1). Alternative 1 could directly impact culturally important resources on 1,571 acres of lands classified as NAEs and an estimated 18,928 cultural resource sites (see Table R2.9-14 and Table R2.8-14 in Appendix R2).

Figure IV.9-3, Native American Element (Identified in the 1980 CDCA Plan), Alternative 1, illustrates the location of NAEs and the components of Alternative 1.

While NAE designated lands and cultural resource sites are important, the metrics listed above do not represent a complete list of places or areas important to tribes in the Plan Area. The identification, evaluation, and treatment of resources important to tribes would need to be conducted on a project-specific level to ensure that any unidentified resources are taken into account.

In addition, under Alternative 1, an estimated 18,928 archaeological and built-environment resources would fall within DFAs (see Table R2.8-14 in Appendix R2). Traditional cultural properties and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a more qualitative manner.

Impact TL-1: Plan components could disproportionately affect resources of cultural and spiritual importance to tribes.

As described in more detail in Section IV.9.2, all phases of renewable energy development under all of the alternatives could impact resources of cultural and spiritual importance to tribes.

Impact TL-2: Costs associated with the participation in environmental documents required by the Plan would be disproportionately borne by tribal governments and organizations.

As described in more detail in Section IV.9.2, the development of renewable energy projects could disproportionately impact tribal governments and organizations.

While NAE designated lands and cultural resource sites are important, the metrics listed above do not represent a complete list of places or areas important to tribes in the Plan Area. The identification, evaluation, and treatment of resources important to tribes would need to be conducted on a project-specific level to ensure that any unidentified resources are taken into account.

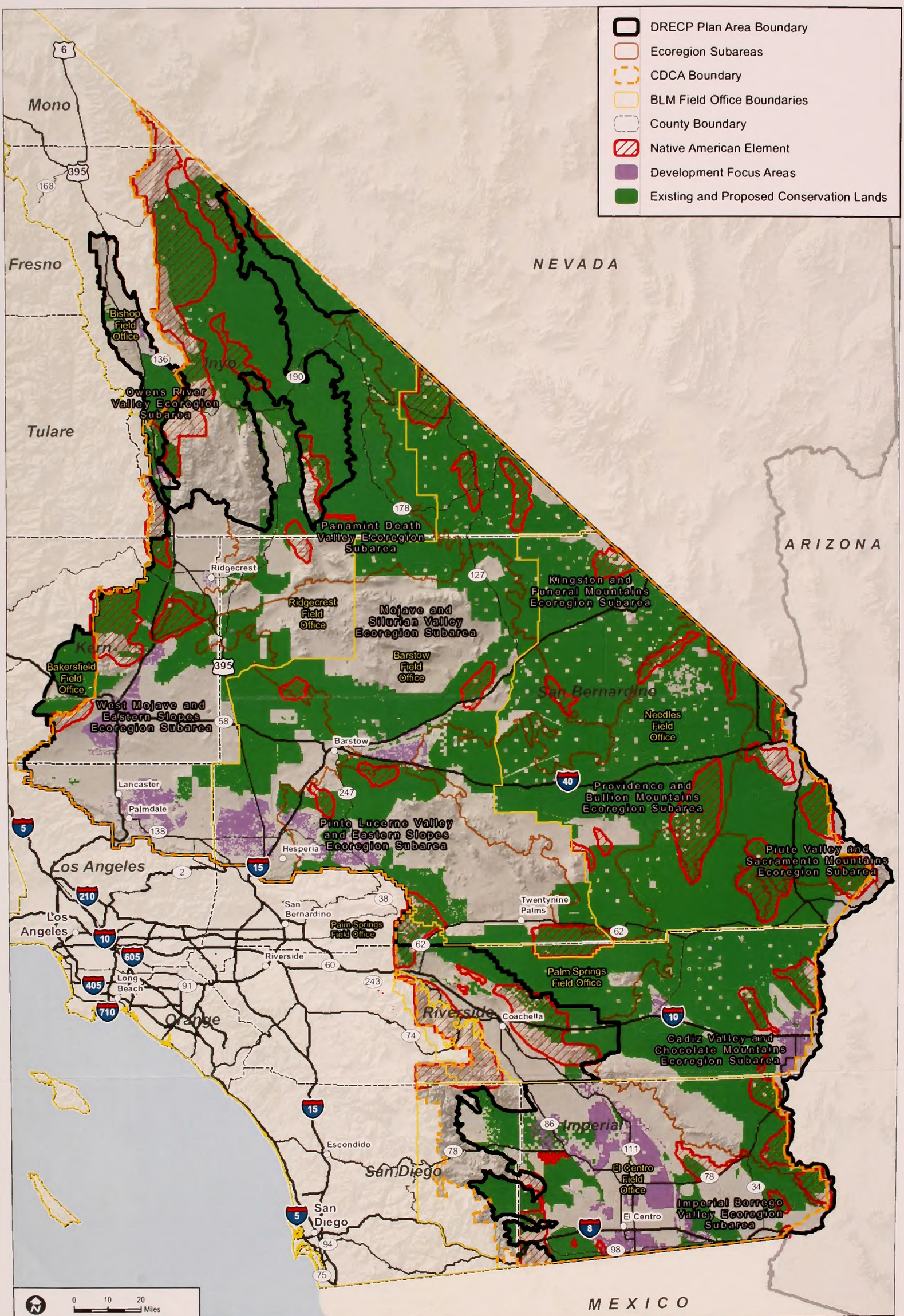
Impacts in Study Area Lands

Study Area Lands refer to three categories of lands: FAAs, SAAs, and DRECP Variance Lands. Development in any of the Study Area Lands could adversely impact resources important to tribes.

Future Assessment Areas. No FAAs are defined for Alternative 1.

Special Analysis Areas (SAAs). In Alternative 1 the two SAAs defined in the Preferred Alternative would be conservation lands. These 42,000 acres (Table IV.1-3) are predicted to contain 840 archaeological and built-environment resources. Traditional cultural properties and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a more qualitative manner.

DRECP Variance Lands. Under Alternative 1, there would be 37,000 acres of Variance Lands (Table IV.1-4). An estimated 740 archaeological and built-environment resources are present. These overlap with a total 4,315 NAE acres: 42 acres in the Cadiz Valley and Chocolate Mountains ecoregion subarea, 1 acre in the Imperial Borrego Valley ecoregion subarea, 3,766 acres in the Kingston and Funeral Mountains ecoregion subarea, 13 acres in the Pinto Lucerne Valley and Eastern Slopes ecoregion subarea, and 493 acres in the Providence and Bullion Mountains ecoregion subarea. An estimated 86 archaeological and built-environment resources are in this area. Traditional cultural properties and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a more qualitative manner.



Sources: ESRI (2014); CEC (2013); BLM (2013); CDFW (2013); USFWS (2013)

FIGURE IV.9-3

Native American Element (Identified in the 1980 CDCAP), Alternative 1

Draft DRECP and EIR/EIS

August 2014

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Impact Reduction Strategies and Mitigation

The implementation of the Plan would result in conservation of some desert lands as well as the development of renewable energy generation and transmission facilities on other lands. The impacts of the renewable energy development covered by the Plan would be lessened in several ways. First, the Plan incorporates CMAs for each alternative, including specific biological reserve design components and LUPA components. Also, the implementation of existing laws, orders, regulations, and standards would reduce the impacts of project development. If significant impacts would still result after implementation of CMAs and compliance with applicable laws and regulations, then specific mitigation measures are recommended in this section.

Conservation and Management Actions

The conservation strategy for Alternative 1 (presented in Volume II, Section II.3.1.1) defines specific actions that would reduce the impacts of this alternative. The conservation strategy includes a definition of the reserve design and specific CMAs for Alternative 1. While the CMAs were developed for BLM lands only, this analysis assumes that all CMAs would be applied also to nonfederal lands. As such, the details of these CMAs would be modified to meet the requirements of state law, CEC, or other appropriate state lead agencies. However, those modifications are not presented here. It is important to note that cultural resources CMAs and NSHT CMAs associated with NLCS lands and ACECs vary significantly by alternative.

All CMAs relevant to tribal interests are the same as the Preferred Alternative except for the following:

<u>Planning Area–Wide National Conservation Land Management Direction</u>

- **Cultural Resources** – Any adverse effects to historic properties resulting from allowable uses will be addressed through the Section 106 process of the NHPA and the implementing regulations at 36 CFR Part 800.

<u>Development Focus Areas</u>

- **Soil, Water, and Water-Dependent Resources**. Would require that disturbance of sensitive soils be limited to 1% of the sensitive soil areas within a proposed project footprint. In addition, this would limit disturbance of desert pavement so that no more than 5% of the desert pavement within a proposed project footprint shall be disturbed for construction.

National Trails

- **Management Corridor Width (see also maps)**: Establish an NSHT Management Corridor, width, generally 0.25 mile from centerline. It is important to note these widths vary by alternative, resulting in varying amounts of conserved land.
- **Management of NSHT Management Corridors:** Manage NSHTs as components of BLM's NLCS. Where NSHTs overlap other National Conservation Lands, the more protective CMAs or land use allocations would apply.
- **Lands and Realty:**
  - ROWs
    - **Site Authorizations**: NSHT Management Corridors would be avoidance areas. Sites' ROW would require mitigation/compensation resulting in net benefit to the NSHT.
    - **Linear ROWs:** NSHT Management Corridors would be avoidance areas. Exclude cultural landscapes, high-potential historic sites, and high-potential route segments identified along historic trails corridors from transmission. Where development affects NSHT Management Corridors, an analysis must be performed to ensure that it does not substantially interfere with the nature and purposes of the trail, and that mitigation/compensation results in a net benefit to the trail.
    - **Renewable Energy ROW:** Exclude cultural landscapes, high-potential historic sites, and high-potential route segments identified along NSHT Management Corridors from transmission except in approved DFAs. Where development affects NSHT Management Corridors, an analysis must be performed to ensure that it does not substantially interfere with the nature and purposes of the trail, and that mitigation/compensation results in a net benefit to the trail.
  - **Land Tenure:** Exchange or disposal must result in net benefit to trail values through acquisition or other compensation. Disposal of lands containing NSHTs would not occur.
- **Minerals:**
  - **Locatable Minerals**: Locatable minerals would be treated the same as limited or controlled use areas and a Plan of Operations would be required for greater than casual use as identified in CFR 3809.11.
  - **Saleable Minerals**: NSHT Management Corridors would be unavailable for saleable mineral development.

  - **Leasable Minerals**: NSHT Management Corridors would be available for leasing with a no surface occupancy stipulation. Surface coal mining would not be allowed within the NSHT Management Corridors

- **Recreation:** Competitive and Commercial Special Recreation Permits are permitted if they do not interfere with nature and purposes of trail.
- **Cultural Resources:** This CMA would also be applied to nonfederal lands but modified to meet the requirements of state law and CEC or other state lead agencies. This CMA also varies by alternative.
  - Any adverse effects to historic properties resulting from allowable uses would be addressed through the NHPA Section 106 process and the implementing regulations at 36 CFR Part 800.
- **Visual Resources Management:** All NSHT Management Corridors would be designated as VRM Class II, except within approved transmission corridors (VRM Class III) and DFAs (VRM Class IV). However, state-of-the-art VRM best management practices for renewable energy would be employed commensurate with the protection of nationally significant scenic resources and cultural landscapes to minimize the level of intrusion and protect trail settings.
- **Mitigation Requirements**
  - If a segment of a National Scenic or Historic Trail or trail under study for possible designation traverses a DFA, it will be subject to mitigation for impacts to trail resources, qualities, values, and associated settings, and primary use or uses, including, but not limited to, and not in priority order: avoidance, the cost of trail relocation, on-site mitigation and off-site mitigation. Compensation can include acquisition or restoration of corridor features and landscapes will be at a minimum of 2:1, and must result in a net benefit to the overall national trail management corridor. Covered Activity development within high potential route segments must not substantially interfere with the nature and purposes of the National Trail.

Laws and Regulations

Similar to the No Action Alternative, existing laws and regulations would reduce certain impacts of Plan implementation. Relevant regulations are presented in the Regulatory Setting in Volume III. The requirements of relevant laws and regulations are summarized for the No Action Alternative in Section IV.9.3.1.1.1.

Mitigation Measures

After implementation of the CMAs and existing laws and regulations, mitigation measures would be applied to further reduce some of the DRECP's adverse impacts. Recommended mitigation measures are presented for the Preferred Alternative in Section IV.9.3.1.1.1. Mitigation Measure TL-1a (Protect Tribal Resources) and Mitigation Measure TL-2a (Provide Support to Tribal Governments) are recommended to further reduce the adverse impacts of Alternative 1. The specific components of Mitigation Measures TL-1a and TL-2a would be developed in consultation with tribes and the State Historic Preservation Officer under NHPA Section 106.

IV.9.3.3.1.2 Impacts from Reserve Design

Under Alternative 1, tribal resources might benefit from increased protection of natural resources within conservation areas as well as from the CMAs defined above. Proposed ACEC and NLCS designations could provide protection for tribal resources; disturbance caps in these areas are designed to conserve and protect the resource values. Development in NLCS lands would be limited to 1% of total authorized disturbance, or to the level allowed by collocated ACEC/wildlife allocations, whichever is more restrictive. These disturbance caps and other management actions would minimize surface disturbance and thereby provide protection for cultural resources of interest to tribes.

Under Alternative 1, the NAE acres within Reserve Design Lands are shown in Table R2.9-15 (Appendix R2). With Alternative 1, 76% of NAE acres (1,578,716) would fall within the reserve design and would not be subject to renewable energy development. While important, NAE areas do not represent a complete list of places or areas important to tribes. Unidentified resources important to tribes may be present.

Under Alternative 1, an estimated 573,972 (or 44% of all known archaeological and built-environment resources) resources would fall within Reserve Design Lands (see Table R2.8-15 in Appendix R2). Traditional cultural properties and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a more qualitative manner. Due to their location, resources in these areas would not be subject to impacts from renewable energy development.

IV.9.3.3.2 Impacts of DRECP Land Use Plan Amendment on BLM Land: Alternative 1

This section addresses two components of effects of the BLM LUPA: the streamlined development of renewable energy and transmission on BLM land under the LUPA and the impacts of the amended land use plans themselves.

IV.9.3.3.2.1 Impacts from Renewable Energy and Transmission Development on BLM Land

Under Alternative 1, 769 NAE acres fall within DFA footprints (as shown in Table R2.9-16 of Appendix R2). This represents less than 0.04% of the NAE acres identified in the 1980 CDCA assessment. While important, CDCA-designated NAE areas do not represent a complete list of places or areas important to tribes. Unidentified resources important to tribes may be present.

Under Alternative 1, an estimated 9,536 archaeological and built-environment resources are within DFA footprints on BLM LUPA lands, shown in Table R2.8-16 (Appendix R2). Overall, approximately 1.6% of estimated archaeological and built-environment resources are within DFAs in BLM LUPA lands under Alternative 1. Traditional cultural properties and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a more qualitative manner.

IV.9.3.3.2.2 Impacts of Changes to BLM Land Designations

The proposed changes to BLM land designations would have both beneficial and adverse effects on tribal resources. Proposed ACEC and NLCS designations would establish disturbance caps in areas designed to conserve and protect resource values, and renewable energy development would be prohibited in these designations. Development in NLCS lands would be limited to 1% of total authorized disturbance, or to the level allowed by collocated ACEC/wildlife allocations, whichever is more restrictive. These disturbance caps and other management actions, including the CMAs defined above, would minimize surface disturbance and thereby provide protection for tribal resources.

Under Alternative 1, NAE acres within BLM land designations on BLM LUPA lands are shown in Table R2.9-17 and archaeological and built-environment resources expected within BLM Land Designations on BLM LUPA lands are shown in Table R2.8-17 (Appendix R2). These designations include NLCS, ACEC, wildlife allocation, SRMA, land with wilderness characteristics, and Trail Management Corridors. The majority of the NAE acres (531,616) and estimated archaeological and built-environment resources (176,813) fall within the existing and proposed ACEC lands. Although important, NAE areas do not represent a complete list of places or areas important to tribes. Unidentified resources important to tribes may be present. An estimated 273,692 archaeological and built-environment resources are on BLM LUPA Land Designation acres under Alternative 1. Traditional cultural properties and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a more qualitative manner. In Alternative 1, the

NSHT Management Corridor is 0.25 mile on either side of the centerline. As a result, an estimated 2,019 cultural resources would be protected.

IV.9.3.3.3 Impacts of Natural Community Conservation Plan: Alternative 1

The impacts of the NCCP for Alternative 1 would be the same as those defined in Section IV.9.3.2.1 for the Plan-wide analysis.

IV.9.3.3.4 Impacts of General Conservation Plan

The impacts of the GCP would be similar to the impacts defined in Section IV.9.3.3.1 for the Plan-wide analysis, but they would occur on nonfederal lands only.

For Alternative 1, 802 NAE acres fall within the DFA footprints (see Table R2.9-18 in Appendix R2). Of the GCP lands, approximately 38% (78,442 NAE acres) would be within conservation lands (see Table R2.9-19).

Under Alternative 1, archaeological and built-environment resources expected within DFA footprints on GCP lands are shown in Table R2.8-18. For the GCP lands under Alternative 1, an estimated 9,360 archaeological and built-environment resources could fall within the DFA footprints. This is 1.75% of the archaeological and built-environment resources within the GCP lands. Table R2.8-19 has the number of estimated resources within the GCP Reserve Design Lands under Alternative 1. Of the GCP lands, approximately 13% would be within conservation acres. Traditional cultural properties and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a more qualitative manner.

IV.9.3.3.5 Impacts Outside the Plan Area

IV.9.3.3.5.1 Impacts of Transmission Outside the Plan Area

The impacts of transmission outside the Plan Area on tribal interests would be the same under all alternatives. These impacts are as described for the No Action Alternative in Section IV.9.3.1.5, Impacts of Transmission Outside the Plan Area in No Action Alternative.

IV.9.3.3.5.2 Impacts of BLM LUPA Decisions Outside the Plan Area

Under Alternative 1, NAE acres found within BLM land designations outside the Plan Area are shown in Table R2.9-20; and archaeological and built-environment resources expected within BLM Land Designations outside the Plan Area are shown in Table R2.8-20 (Appen-

dix R2). There are 70,813 NAE acres on proposed NLCS lands, 87,923 NAE acres on existing and proposed ACEC lands, and 3,889 NAE acres within NSHT Management Corridors.

There are an estimated 2,715 archaeological and built-environment resource son proposed NLCS lands, with 3,777 on existing and proposed ACEC lands and 99 within NSHT Management Corridors. Traditional cultural properties and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a more qualitative manner. In Alternative 1 the National Trail Management Corridor is 0.25 mile on either side of the centerline. As a result, an estimated 78 cultural resources would be protected. Impacts of BLM land designations outside the Plan Area to NAE acres and all kinds of cultural resources would be the same as those described in Section IV.9.3.2.1.2.

IV.9.3.3.6 CEQA Significance Determination for Alternative 1

The CEQA significance for Impacts TL-1 and TL-2 explained in Section IV.9.3.1.6 for the No Action Alternative also apply to Alternative 1. The Preferred Alternative has a higher potential for impact to sensitive resources on NAE lands than Alternative 1 as the Preferred Alternative contains more NAE acres within the DFA footprints than does Alternative 1. The Preferred Alternative would protect more NAE acres than Alternative 1 as the Preferred Alternative has more acres of land within the reserve design than Alternative 1.

In comparison to the Preferred Alternative, there are an estimated 18,928 archaeological and built-environment resources located in the DFAs, and an estimated 1,293,494 resources located on Reserve Design Land. Traditional cultural properties and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a more qualitative manner.

IV.9.3.3.7 Comparison of Alternative 1 with Preferred Alternative

Chapter IV.27 presents a comparison of all action alternatives and the No Action Alternative across all disciplines. This section summarizes the comparison of Alternative 1 with the Preferred Alternative.

IV.9.3.3.7.1 Alternative 1 Compared with Preferred Alternative for Plan-wide DRECP

Table IV.9-5 compares the acres of NAE within DFAs and the reserve design for the Preferred Alternative and Alternative 1.

Table IV.9-5
Comparison of Preferred Alternative with Alternative 1 for Plan-wide DRECP

	Preferred Alternative NAE Acres	Alternative 1 NAE Acres
Within DFAs	1,994	1,571
Within the reserve design	1,655,877	1,578,716

Comparison of Alternative 1 with the Preferred Alternative yields few definitive conclusions regarding impacts to tribal resources overall. However, the following conclusions regarding sensitive resources in NAE areas can be made:

- The Preferred Alternative has a higher potential for impact to sensitive resources on NAE lands than Alternative 1 as the Preferred Alternative contains more NAE acres within the DFA footprints than Alternative 1.
- The Preferred Alternative would protect more NAE acres than Alternative 1 as the Preferred Alternative has more acres of land within the reserve design than Alternative 1.

Table IV.9-6 compares the number of cultural resources within DFAs and the reserve design for the Preferred Alternative and Alternative 1.

Table IV.9-6
Comparison of Preferred Alternative with the Alternative 1 for Plan-Wide DRECP

	Preferred Alternative	Alternative 1
Number of resources in DFAs	12,543	18,928
Number of resources conserved in Reserve Design Lands	576,735	724,357
Plan-wide CMAs (general)	Reduce impacts to cultural resources	Reduce impacts to cultural resources
Cultural resources CMAs for NCLS lands only	With exception of research, no adverse effects to historic properties authorized	Adverse effects will be addressed through NHPA Section 106
CMAs for National Historic Trails	No adverse effects to NHT and NHT historic properties authorized. All NHT segments assumed to be eligible for NRHP pending evaluation	Adverse effects will be addressed through NHPA Section 106
NSHT Management Corridor width and number of resources conserved	5 miles on either side of centerline: 28,437	¼ mile on either side of centerline: 2,019

The Preferred Alternative would impact fewer cultural resources in the DFA footprints than Alternative 1. In contrast, Alternative 1 would conserve more resources in the Reserve Design Lands but conserve fewer resources in the NSHT Management Corridors. In addition, the CMAs for Preferred Alternative are more protective than for Alternative 1.

Overall Table IV.9-5 and Table IV.9-6 suggest that, although for Alternative 1 there are fewer acres of NAE land within a DFA footprint and the number of resources conserved is larger, the CMAs in the Preferred Alternative are more protective. Therefore, the Preferred Alternative is more protective to resources of interest to tribes than Alternative 1.

Geographic Distinctions

In this section, alternatives are compared in two ways: (a) by the presence or absence of NAE acres in the geographic areas of interest and potential impacts there and (b) by the potential impacts to archaeological and built-environment resources in these same locations.

Under the Preferred Alternative, the Silurian Valley would be an SAA. Under Alternative 1 this location would be a BLM conservation allocation. No NAE acres have been identified in this location (Figure III.9-1); however, that does not mean that no resources important to tribes are present. Overall, Alternative 1 would protect more resources important to tribes in this location than would the Preferred Alternative although they have not yet been identified.

Under the Preferred Alternative, the Hidden Hills area of Inyo County would be a DFA. Under Alternative 1, this location would be a Conservation Planning Area and Variance Land. Based on previous studies associated with a proposed solar project in this location, the Hidden Hills area is known to be very culturally sensitive because of the presence of a segment of the Salt Song Trail, Route 66 and a National Historic Trail. In addition, there are NAE acres in this location (Figure III.9-1). Overall, under Alternative 1, part of this location might be conserved; therefore, Alternative 1 would be more protective of resources important to tribes than the Preferred Alternative.

Under the Preferred Alternative, the Notch in the Park would be an FAA. Under Alternative 1 this location would be undesignated. No NAE acres have been identified in this location (Figure III.9-1); however, that does not mean that no resources important to tribes are present. In each alternative, this location could either be developed or conserved, therefore there is no difference between the alternatives for resources important to tribes.

Under the Preferred Alternative, the Area north of Tehachapi would be an FAA. Under Alternative 1 this location would be undesignated. The majority of this area consists of NAE acres. In each alternative, this location could either be developed or conserved, therefore there is no difference between the alternatives for resources important to tribes.

Under the Preferred Alternative, the area east of Twentynine Palms would be an FAA. Under Alternative 1, this location would be undesignated. There are NAE acres in this location (Figure III.9-1). In each alternative, this location could either be developed or conserved, therefore there is no difference between the alternatives for resources important to tribes.

Under both the Preferred Alternative and Alternative 1, Owens Lake would be a BLM conservation allocation. There are NAE acres in this location (Figure III.9-1), and dry lakes in this part of California are known to be very culturally sensitive. In addition, the Owens River Valley ecoregion subarea has the highest density of cultural resources of all of the DRECP subareas (1.76 resources per acre). Therefore, both alternatives would protect resources important to tribes in this location equally.

Under the Preferred Alternative, Searles Lake between Fort Irwin and China Lake would be undesignated. Under Alternative 1, this location would be undesignated. There are NAE acres in this location (Figure III.9-1). In each alternative, this location could either be developed or conserved, therefore there is no difference between the alternatives for resources important to tribes.

Under the Preferred Alternative, the area along U.S. Route 395 north of Edwards Air Force Base is an SAA. No NAE acres have been identified in this location (Figure III.9-1); however, that does not mean that no resources important to tribes are present. Under Alternative 1, this location would be a BLM conservation allocation. Therefore, Alternative 1 would protect more resources important to tribes in this location than the Preferred Alternative.

IV.9.3.3.7.2 Alternative 1 Compared with Preferred Alternative for the BLM Land Use Plan Amendment

While the number of resources conserved by each kind of BLM Land Designation, cultural resources CMAs apply to NLCS, ACECs and Trail Management Corridors; and so the importance of those designations are emphasized here.

Table IV.9-7 compares the acres of NAE within ACECs, NLCS lands, Trail Management Corridors, and DFAs on BLM LUPA lands for the Preferred Alternative and Alternative 1.

Table IV.9-7
Comparison of Preferred Alternative with Alternative 1 for BLM LUPA

Land Classification	Preferred Alternative NAE Acres	Alternative 1 NAE Acres
ACEC	319,952	531,616
NLCS land	433,447	173,610
NSHT Management Corridor	162,358	13,633
DFA on BLM LUPA land	991	769

Table IV.9-8 compares the number of cultural resources of within BLM LUPA land designations for the Preferred Alternative and Alternative 1.

Table IV.9-8
Comparison of Preferred Alternative with the Alternative 1 for the BLM Land Use Plan Amendment

Land Classification	Preferred Alternative Estimated # of Resources	Alternative 1 Estimated # of Resources
SRMA	68,801	69,315
NLCS	176,810	63,863
Existing and proposed ACEC	84,542	176,813
Wildlife allocation	742	19,393
Land with wildlife characteristics	11,237	0
NSHT Management Corridor	28,437	2,019
BLM LUPA land in DFA footprint	6,855	9,536

Overall, although the Preferred Alternative contains more acres of NAE lands within DFA footprints on BLM LUPA lands, the Preferred Alternative contains more NAE acres and resources on conservation lands and has more restrictive CMAs. Therefore, a larger number of NAE acres and cultural resources would be protected more effectively by the Preferred Alternative than Alternative 1.

IV.9.3.3.7.3 Alternative 1 Compared with Preferred Alternative for NCCP

The impacts of the NCCP for Alternative 1 are the same as those defined in Section IV.9.3.2.1 for the Plan-wide analysis. As a result, the comparison of Alternative 1 with the No Action Alternative for the NCCP is the same as described above for Plan-wide DRECP.

IV.9.3.3.7.4 Alternative 1 Compared with Preferred Alternative for the GCP

Table IV.9-9 compares the acres of NAE within DFAs and the reserve design for the Preferred Alternative and Alternative 1.

Table IV.9-9
Comparison of Preferred Alternative with Alternative 1 for GCP Lands

Land Classification	Preferred Alternative NAE Acres	Alternative 1 NAE Acres
GCP DFA	1,004	802
Conserved	76,654	78,442

The following conclusions regarding sensitive resources in NAE areas for GCP lands can be made:

- The Preferred Alternative would have a higher potential for impacts to sensitive resources on NAE lands compared with Alternative 1 as the Preferred Alternative contains more NAE acres the DFA footprints than Alternative 1.
- Alternative 1 would protect more acres of NAE lands than the Preferred Alternative because more NAE acres would fall within the reserve design. However, it is important to note that the resources present on the NAE acres are not a complete list of places important to tribes.

Table IV.9-10
Comparison of Preferred Alternative with Alternative 1 for the GCP

Development Category	Preferred Alternative Estimated # of Resources	Alternative 1 Estimated # of Resources
GCP DFA	5,662	9,360
Conserved	69,920	69,919

Overall, both alternatives conserve the same number of resources. Furthermore, Alternative 1 would potentially impact more cultural resources than the Preferred Alternative yet the Preferred Alternative would potentially impact a greater number of NAE acres than Alternative 1. Therefore, the Preferred Alternative is more protective of NAE acres and resources important to tribes than Alternative 1.

IV.9.3.4 Alternative 2

IV.9.3.4.1 Plan-wide Impacts of Implementing the DRECP: Alternative 2

IV.9.3.4.1.1 Plan-wide Impacts and Mitigation Measures from Renewable Energy and Transmission Development

Impact Assessment

The general issues of concern to tribes related to renewable energy development for Alternative 2 are the same as those described in Section IV.9.2.1 for Typical Impacts and in Section IV.9.3.1.1.1 for the No Action Alternative. Alternative 2 could directly impact culturally important resources on 3,267 acres of lands classified as NAEs and an estimated 19,925 cultural resource sites (Appendix R2, Table R2.9-21 and Table R2.8-21). Figure IV.9-4, Native American Element (Identified in the 1980 CDCA Plan), Alternative 2, illustrates the location of NAEs and the components of Alternative 2.

While NAE designated lands and cultural resource sites are important, the metrics listed above do not represent a complete list of places or areas important to tribes in the Plan Area. The identification, evaluation, and treatment of resources important to tribes would need to be conducted on a project-specific level to ensure that any unidentified resources are taken into account.

Under Alternative 2, an estimated 19,925 archaeological and built-environment resources would fall within DFAs (see Table R2.8-21 in Appendix R2). Traditional cultural properties and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a more qualitative manner. Each impact is described below.

Impacts TL-1 (Plan components could disproportionately affect resources of cultural and spiritual importance to tribes) and TL-2 (Costs associated with the participation in environmental documents required by the Plan would be disproportionately borne by tribal governments and organizations).

As described in Section IV.9.2, all phases of renewable energy development under all of the alternatives could affect resources of cultural and spiritual importance to tribes and disproportionately impact tribal governments and organizations.

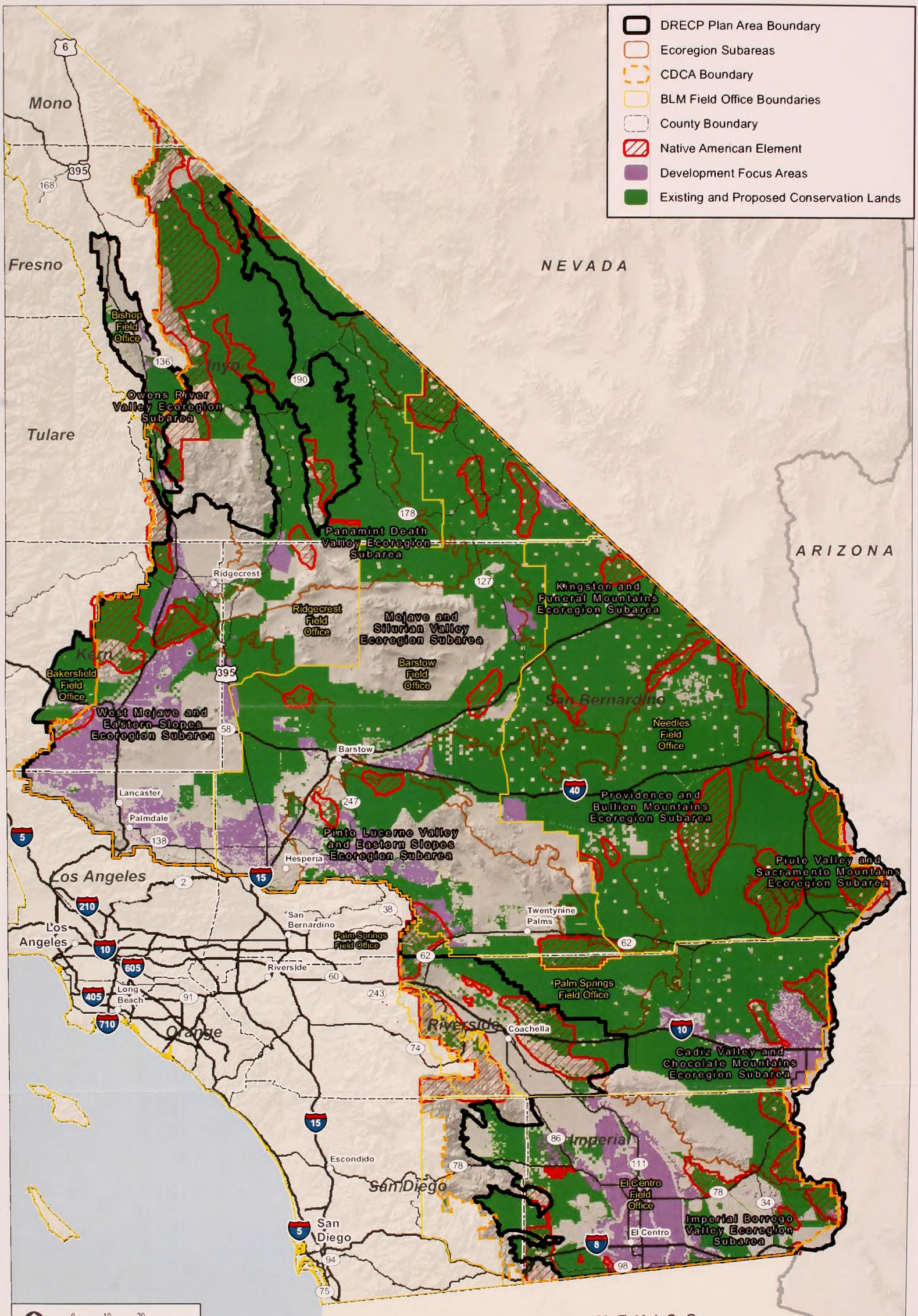
Impacts in Study Area Lands

Study Area Lands refer to three categories of lands: FAAs, SAAs, and DRECP Variance Lands. Development in any of the Study Area Lands could adversely impact resources important to tribes.

Future Assessment Areas. In Alternative 2, 109,000 acres are identified as FAAs (Table IV.1-2). This area is predicted to contain 2,180 archaeological and built-environment resources. These FAAs overlap with NAE for 1,768 acres in the Pinto Lucerne Valley and the Eastern Slopes ecoregion subarea. This area of overlap is predicted to contain 35 archaeological and built-environment resources. Traditional cultural properties and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a more qualitative manner.

Special Analysis Areas (SAAs). In Alternative 2, the two SAAs defined in the Preferred Alternative would be DFAs. These 42,000 acres (Table IV.1-3) are predicted to contain 840 archaeological and built-environment resources. Traditional cultural properties and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a more qualitative manner.

DRECP Variance Lands. Under Alternative 2, Variance Lands identified in the Preferred Alternative would be undesignated areas except the lands west of Parker and south of Big Maria Mountain Wilderness Areas, which would become NLCS conservation areas (Table IV.1-3).



Sources: ESRI (2014); CEC (2013); BLM (2013); CDFW (2013); USFWS (2013)

FIGURE IV.9-4

Native American Element (Identified in the 1980 CDCAP), Alternative 2

Draft DRECP and EIR/EIS

August 2014

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Impact Reduction Strategies and Mitigation

The implementation of the Plan would result in conservation of some desert lands as well as the development of renewable energy generation and transmission facilities on other lands. The impacts of the renewable energy development covered by the Plan would be lessened in several ways. First, the Plan incorporates CMAs for each alternative, including specific biological reserve design components and LUPA components. Also, the implementation of existing laws, orders, regulations, and standards would reduce the impacts of project development. If significant impacts would still result after implementation of CMAs and compliance with applicable laws and regulations, then specific mitigation measures are recommended in this section.

Conservation and Management Actions

The conservation strategy for Alternative 2 (presented in Volume II, Section II.3.1.1) defines specific actions that would reduce the impacts of this alternative. The conservation strategy includes a definition of the reserve design and specific CMAs for the Preferred Alternative. While the CMAs were developed for BLM lands only, this analysis assumes that all CMAs would also be applied also to nonfederal lands. As such, the details of these CMAs would be modified to meet the requirements of state law, CEC or other appropriate state lead agencies. It is important to note that cultural resources CMAs and NSHT CMAs associated with NCLS lands and ACECs vary significantly by alternative.

All CMAs relevant to tribal interests are the same as the Preferred Alternative except for the following:

<u>Planning Area–wide National Conservation Land Management Direction</u>

- **Cultural Resources** – No allowable uses that result in adverse effects to historic properties as defined under NHPA Section 106 process of the NHPA and the implementing regulations at 36 CFR Part 800 will be authorized.

<u>Development Focus Areas.</u>

- **Soil, Water, and Water-Dependent Resources.** Would require that disturbance of sensitive soils be limited to 20% of the sensitive soil areas within a proposed project footprint. In addition, this would limit disturbance of desert pavement so that no more than 5% of the desert pavement within a proposed project footprint shall be disturbed for construction.

National Trails

- **NSHT Management Corridor Width (see maps).** Establish an NSHT Management Corridor width, generally 10 miles from the centerline. It is important to note these widths vary by alternative, resulting in varying amounts of conserved land.
- **Management of NSHT Management Corridors.** Manage national trails as components of BLM's NLCS. Where NSHT lands overlap NLCS lands, the more protective CMAs or land use allocations would apply.
- **Lands and Realty**
  - **ROWs**
    - **Site authorizations**: NSHT Management Corridors would be exclusion areas.
    - **Linear ROWs:** NSHT Management Corridors would be exclusion areas except in designated transmission corridors. Where development in transmission corridors affects NSHT Management Corridors, an analysis must be performed to ensure that it does not substantially interfere with the nature and purposes of the trail, and that mitigation/compensation results in a net benefit to the trail.
    - **Renewable Energy ROW**: Exclude cultural landscapes, high-potential historic sites, and high-potential route segments identified along NSHT Management Corridors from transmission except in approved DFAs. Where development affects NSHT Management Corridors, an analysis must be performed to ensure that it does not substantially interfere with the nature and purposes of the trail, and that mitigation/compensation results in a net benefit to the trail.
  - **Land tenure:** Exchange, purchase, or donation of lands within NSHT Management Corridors would be allowed; disposal of land within NSHT Management Corridors would not be permitted.
- **Minerals**
  - **Locatable Minerals**: BLM would propose NSHT Management Corridors for withdrawal from mineral entry. Withdrawals would be subject to valid existing rights.
  - **Saleable Minerals**: NSHT Management Corridors would be unavailable for saleable mineral development.
  - **Leasable Minerals**: NSHT Management Corridors would be unavailable for mineral leasing.

- **Recreation.** Competitive Special Recreation Permits would not be permitted. Commercial Special Recreation Permits would be limited to those uses that provide for enjoyment and appreciation of NSHT values, resources, qualities, and associated settings, and the primary use or uses.

- **Cultural Resources.** No allowable uses that result in adverse effects to historic properties as defined under NHPA Section 106 and the implementing regulations at 36 CFR Part 800 would be authorized.

- **Visual Resources Management.** All NSHT Management Corridors would be designated as VRM Class II, except within approved transmission corridors (VRM Class III) and DFAs (VRM Class IV). However, state-of-the-art VRM best management practices for renewable energy would be employed commensurate with the protection of nationally significant scenic resources and cultural landscapes, and other identified resources, qualities, values, and associated settings and the primary use or uses to minimize the level of intrusion and protect trail settings.

- **Mitigation Requirements**
  - If a segment of an NSHT or Historic Trail or trail under study for possible designation traverses a DFA, it would be subject to mitigation for impacts to trail resources, qualities, values, and associated settings, and the primary use or uses, including, but not limited to, and not in priority order: avoidance, the cost of trail relocation, on-site mitigation, and off-site mitigation. Compensation can include acquisition or restoration of corridor features and landscapes at a minimum of 2:1, and must result in a net benefit to the overall trail corridor. Development of Covered Activities in high-potential route segments must not substantially interfere with the nature and purposes of the NSHT.

Laws and Regulations

Similar to the No Action Alternative, existing laws and regulations would reduce certain impacts of Plan implementation. Relevant regulations are presented in the Regulatory Setting in Volume III. The requirements of relevant laws and regulations are summarized for the No Action Alternative in Section IV.9.3.1.1.1.

Mitigation Measures

After implementation of the CMAs and existing laws and regulations, mitigation measures would be applied to further reduce some of the DRECP's adverse impacts. Recommended mitigation measures are presented for the Preferred Alternative in Section IV.9.3.1.1.1. Mitigation Measure TL-1a (Protect Tribal Resources) and Mitigation Measure TL-2a

(Provide Support to Tribal Governments) are recommended to further reduce the adverse impacts of Alternative 2. The specific components of Mitigation Measures TL-1a and TL-2a would be developed in consultation with tribes and the State Historic Preservation Officer under NHPA Section 106.

IV.9.3.4.1.2 Impacts from Reserve Design

Under Alternative 2, tribal resources might benefit from increased protection of natural resources within conservation areas as well as from the CMAs defined above. Proposed ACEC and NLCS designations could provide protection for tribal resources; disturbance caps in these areas are designed to conserve and protect the resource values, and renewable energy development would be prohibited in these designations. Development in NLCS lands would be limited to 1% of total authorized disturbance, or to the level allowed by collocated ACEC/wildlife allocations, whichever is more restrictive. These disturbance caps and other management actions would minimize surface disturbance and thereby provide protection for cultural resources of interest to tribes.

Under Alternative 2, the NAE acres within Reserve Design Lands are shown in Table R2.9-22 (Appendix R2). With Alternative 2, an estimated 83% of NAE acres (1,715,346) are within the reserve design and would not be subject to renewable energy development. While important, NAE areas do not represent a complete list of places or areas important to tribes. Unidentified resources important to tribes may be present. In addition, an estimated 577,848 (45% of all known archaeological and built-environment resources) resources fall within Reserve Design Lands (see Table R2.8-22 in Appendix R2). Traditional cultural properties and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a more qualitative manner. Due to their location within the conservation reserve system, resources in these areas would not be subject to impacts from renewable energy development.

IV.9.3.4.2 Impacts of DRECP Land Use Plan Amendment on BLM Land: Alternative 2

This section addresses two components of effects of the BLM LUPA: the streamlined development of renewable energy and transmission on BLM land under the LUPA and the impacts of the amended land use plans themselves.

IV.9.3.4.2.1 Impacts from Renewable Energy and Transmission Development on BLM Land

Under Alternative 2, 1,752 NAE acres fall within DFA footprints (as shown in Table R2.9-23 of Appendix R2). Renewable energy and transmission development impact this land. This represents 0.1% of the 2,069,755 NAE acres identified in the 1980 CDCA assessment. While

important, CDCA-designated NAE areas do not represent a complete list of places or areas important to tribes. Unidentified resources important to tribes may be present.

In addition, an estimated 7,815 archaeological and built-environment resources are within DFA footprints on the BLM LUPA lands, shown in Table R2.8-23 (Appendix R2). Overall, approximately 1% of estimated archaeological and built-environment resources fall within DFAs in BLM LUPA lands under Alternative 2. Traditional cultural properties and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a more qualitative manner.

IV.9.3.4.2.2 Impacts of Changes to BLM Land Designations

The proposed changes to BLM land designations would have both beneficial and adverse effects on tribal resources. Proposed ACEC and NLCS designations would establish disturbance caps in areas designed to conserve and protect resource values, and renewable energy development would be prohibited in these designations. Development in NLCS lands would be limited to 1% of total authorized disturbance, or to the level allowed by collocated ACEC/wildlife allocations, whichever is more restrictive. These disturbance caps and other management actions, including the CMAs defined above, would minimize surface disturbance and thereby provide protection for tribal resources.

Under Alternative 2, NAE acres found within BLM land designations on BLM LUPA lands are shown in Table R2.9-24 (Appendix R2); and archaeological and built-environment resources expected within BLM land designations on BLM LUPA lands are shown in Table R2.8-24 (Appendix R2). BLM land designations include NLCS, ACEC, wildlife allocation, SRMA, land with wilderness characteristics, and NSHT Management Corridor. There are 637,021 NAE acres on NLCS lands, 232,455 acres on existing and proposed ACECs, and 316,860 acres within NSHT Management Corridors. Although important, NAE areas do not represent a complete list of places or areas important to tribes. Unidentified resources important to tribes may be present.

An estimated 279,672 archaeological and built-environment resources are on BLM LUPA land designation acres under Alternative 2. The majority of the estimated archaeological and built-environment resources (225,060) fall within NLCS lands. About 42,307 are on existing and proposed ACEC lands. In Alternative 2, the NSHT Management Corridor is 10 miles on either side of the centerline. As a result, an estimated 6,337 cultural resources would be protected. Traditional cultural properties and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a more qualitative manner.

IV.9.3.4.3 Impacts of Natural Community Conservation Plan: Alternative 2

The impacts of the NCCP for Alternative 2 would be the same as those defined in Section IV.9.3.4.1 for the Plan-wide analysis.

IV.9.3.4.4 Impacts of General Conservation Plan

The impacts of the GCP would be similar to the impacts defined in Section IV.9.3.4.1 for the Plan-wide analysis, but they would occur on nonfederal lands only. For Alternative 1, 498 NAE acres fall within the DFA footprints (see Table R2.9-25 in Appendix R2). Of the GCP lands, approximately 43% (89,237 NAE acres) would be within conservation lands (see Table R2.9-26).

Archaeological and built-environment resources expected within DFA footprints on GCP lands are shown in Table R2.8-25. For the GCP lands under Alternative 2, an estimated 13,135 archaeological and built-environment resources could fall within the technology footprints in the DFA footprints. This is 2.4% of the resources within the GCP lands. Under Alternative 2, resources found within GCP Reserve Design Lands are shown in Table R2.8-26. Of the GCP lands, approximately 28% would be within conservation acres.

IV.9.3.4.5 Impacts Outside the Plan Area

IV.9.3.4.5.1 Impacts of Transmission Outside the Plan Area

The impacts of transmission outside the Plan Area on tribal interests would be the same under all alternatives. These impacts are as described for the No Action Alternative in Section IV.9.3.1.5, Impacts of Transmission Outside the Plan Area in No Action Alternative.

IV.9.3.4.5.2 Impacts of BLM LUPA Decisions Outside the Plan Area

Under Alternative 2, NAE acres found within BLM land designations outside the Plan Area are shown in Table R2.9-27 (Appendix R2) and archaeological and built-environment resources expected within BLM land designations outside the Plan Area are shown in Table R2.8-27 (Appendix R2). There are 220,873 NAE acres on proposed NLCS lands, with 108,166 NAE acres on existing and proposed ACEC lands, and 152,636 NAE acres within NSHT Management Corridors.

There are 21,338 archaeological and built-environment resources on BLM LUPA lands outside the Plan Area. Of those archaeological and built-environment resources, 8,522 are on proposed NLCS lands, with 5,381 on existing and proposed ACEC lands and 3,763 within NSHT Management Corridors. In Alternative 2 the NSHT Management Corridor is 10 miles on either side of the centerline. As a result, an estimated 3,052 cultural resources would be protected. Traditional cultural properties and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural

resources. Impacts to these resources are therefore characterized in a more qualitative manner. Impacts of BLM land designations outside the Plan Area to NAE acres and all kinds of cultural resources would be the same as those described in Section IV.8.3.4.1.2.

IV.9.3.4.6 CEQA Significance Determination for Alternative 2

The CEQA Significance Determinations listed in Section IV.9.3.1.6 also apply to Alternative 2. However, compared with the Preferred Alternative, there are an estimated 19,925 archaeological and built-environment resources located in the DFAs and an estimated 1,293,494 resources located on Reserve Design Lands. Traditional cultural properties and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a more qualitative manner.

IV.9.3.4.7 Comparison of Alternative 2 with Preferred Alternative

Chapter IV.27 presents a comparison of all action alternatives and the No Action Alternative across all disciplines. This section summarizes the comparison of Alternative 2 with the Preferred Alternative.

IV.9.3.4.7.1 Alternative 2 Compared with Preferred Alternative for Plan-Wide DRECP

Table IV.9-11 compares acres of NAE within the DFA and the reserve design for the Preferred Alternative and Alternative 2.

Table IV.9-11
Comparison of Preferred Alternative with Alternative 2 for Plan-Wide DRECP

Land Classification	Preferred Alternative NAE Acres	Alternative 2 NAE Acres
DFA	1,994	3,267
Conserved in Reserve Design Lands	1,655,877	1715,346

Comparison of Alternative 2 with the Preferred Alternative yields few definitive conclusions regarding impacts to tribal resources overall; however, the following conclusions regarding sensitive resources in NAE areas can be made:

- Alternative 2 would have a higher potential for impacts to sensitive resources than the Preferred Alternative as Alternative 2 contains more NAE acres within the DFA footprints than the Preferred Alternative.

- Alternative 2 would protect more NAE acres than the Preferred Alternative as Alternative 2 contains more NAE acres within the reserve design than the Preferred Alternative.

Table IV.9-12
Comparison of Preferred Alternative with Alternative 1 for Plan-Wide DRECP

	Preferred Alternative	Alternative 2
Number of resources in DFAs	12,543	19,925
Number of resources conserved in Reserve Design Lands	576,735	750,227
Plan-wide CMAs (general)	Reduce impacts to cultural resources	Reduce impacts to cultural resources
Cultural resources CMAs for NCLS lands only	With exception of research, no adverse effects to historic properties authorized.	No adverse effects to historic properties authorized.
CMAs for National Historic Trails	No adverse effects to NHT and NHT/historic properties authorized. All NHT segments assumed to be eligible for NRHP pending evaluation.	No adverse effects to historic properties authorized.
NSHT Management Corridor width and number of resources conserved	5 miles on either side of centerline 28,437	10 miles on either side of centerline 215,632

The Preferred Alternative would impact fewer cultural resources in the DFA footprints than Alternative 2. However, Alternative 2 would conserve more resources in the Reserve Design Lands and significantly more resources in the NSHT Management Corridors. In addition, the CMAs for Alternative 2 are more protective than the ones for the Preferred Alternative.

Overall, Alternative 2 is more protective of NAE acres and resources of interest to tribes than the Preferred Alternative and is the most protective of all of the alternatives.

Geographic Distinctions

In this section, alternatives vary in two ways: (a) by the presence or absence of NAE acres in the geographic areas of interest and potential impacts there, and (b) by potential impacts to archaeological and built-environment resources in these same locations.

Under the Preferred Alternative, the Silurian Valley would be an SAA. Under Alternative 2, this location would be a DFA. No NAE acres have been identified in this location (Figure III.9-1); however, that does not mean that no resources important to tribes are present.

Overall, the Preferred Alternative could protect more resources important to tribes than Alternative 2 because this location could become a conservation allocation.

Under both the Preferred Alternative and Alternative 2, the Hidden Hills area of Inyo County would be a DFA. Based on previous studies associated with a proposed solar project in this location, the Hidden Hills area is known to be very culturally sensitive because of the presence of a segment of the Salt Song Trail, Route 66, and an NSHT. In addition, there are NAE acres in this location (Figure III.9-1). Therefore, both alternatives could have similar potential negative impacts to resources important to tribes in this location.

Under the Preferred Alternative, the Notch in the Park would be an FAA. Under Alternative 2 this location would be undesignated. No NAE acres have been identified in this location (Figure III.9-1); however, that does not mean that no resources important to tribes are present. In each alternative, this location could either be developed or conserved, therefore there is no difference between the alternatives for resources important to tribes.

Under the Preferred Alternative, the area north of Tehachapi would be an FAA. Under Alternative 2 this location would be undesignated. The majority of this location consists of NAE acres (Figure III.9-1). In each alternative, this location could either be developed or conserved, therefore there is no difference between the alternatives for resources important to tribes.

Under the Preferred Alternative, the area east of Twentynine Palms would be an FAA. Under Alternative 2, this location would be a BLM conservation allocation. There are NAE acres in this location (Figure III.9-1). Therefore, Alternative 2 would be more likely to conserve resources important to tribes in this location than would the Preferred Alternative.

Under both the Preferred Alternative and Alternative 2, Owens Lake would be a BLM conservation allocation. There are NAE acres in this location (Figure III.9-1), and dry lakes in this part of California are known to be very culturally sensitive. In addition, the Owens River Valley ecoregion subarea has the highest density of cultural resources of all of the DRECP ecoregion subareas (1.76 resources per acre). Therefore, both alternatives would protect resources important to tribes in this location equally.

Under the Preferred Alternative, Searles Lake between Fort Irwin and China Lake would be undesignated. Under Alternative 2, this location would be a DFA. There are NAE acres in this location (Figure III.9-1). Therefore, the Preferred Alternative would be more likely to preserve resources important to tribes in this location than Alternative 2.

Under the Preferred Alternative, the area along U.S. Route 395 north of Edwards Air Force Base would be an SAA. Under Alternative 2 this location would be a DFA. No NAE acres have been identified in this location (Figure III.9-1); however, that does not mean that no

resources important to tribes are present. Therefore, the Preferred Alternative would be more likely to preserve resources important tribes in this location than Alternative 2.

IV.9.3.4.7.2 Alternative 2 Compared With Preferred Alternative for the BLM Land Use Plan Amendment

While the number of resources conserved by each kind of BLM land designation, cultural resources CMAs apply to NLCS lands, ACECs and NSHT Management Corridors; and so the importance of those designations are emphasized here. Table IV.9-13 compares the acres of NAE within ACECs, NLCS lands, NSHT Management Corridors, and DFAs on BLM LUPA lands for the Preferred Alternative and Alternative 2.

Table IV.9-13
Comparison of Preferred Alternative with Alternative 2 for BLM LUPA

Land Classification	Preferred Alternative NAE Acres	Alternative 2 NAE Acres
ACEC	319,952	232,455
NLCS land	433,447	637,021
NSHT Management Corridor	162,358	316,860
DFA on BLM LUPA land	991	1,752

Table IV.9-14
Comparison of Preferred Alternative with Alternative 2 for the BLM Land Use Plan Amendment

Land Classification	Preferred Alternative Estimated # of Resources	Alternative 2 Estimated # of Resources
SRMA	68,801	66,058
NLCS	176,810	225,006
Existing and Proposed ACEC	84,542	42,307
Wildlife Allocation	742	30
Land with wilderness characteristics	11,237	25,435
NSHT Management Corridor	28,437	215,632
BLM LUPA land in DFA footprint	6,855	7,815

Overall, although Alternative 2 contains more acres of NAE lands within DFA footprints on BLM LUPA lands, Alternative 2 contains more NAE acres and resources on conservation lands. Therefore, Alternative 2 would protect a larger number of NAE acres and cultural resources more effectively than the Preferred Alternative.

IV.9.3.4.7.3 Alternative 2 Compared with Preferred Alternative for NCCP

The impacts of the NCCP for Alternative 2 are the same as those defined in Section IV.9.3.2.1 for the Plan-wide analysis. As a result, the comparison of Alternative 2 with the Preferred Alternative for the NCCP is the same as described above for Plan-wide DRECP.

IV.9.3.4.7.4 Alternative 2 Compared with Preferred Alternative for the GCP

Table IV.9-15 compares the acres of NAE within the DFA footprints and the reserve design for the Preferred Alternative and Alternative 2 for the GCP.

Table IV.9-15
Comparison of Preferred Alternative with No Action Alternative for GCP Lands

Land Classification	Preferred Alternative NAE Acres	Alternative 2 NAE Acres
GCP DFA	1,004	1,498
Conserved	76,654	89,237

The following conclusions regarding sensitive resources in NAE areas for GCP lands can be made:

- Alternative 2 would have a higher potential for impacts to sensitive resources on NAE lands than the Preferred Alternative because more NAE acres could fall within the DFA footprints under Alternative 2.
- Alternative 2 would protect more acres of NAE lands than the Preferred Alternative because more NAE acres would fall within the reserve design.

Table IV.9-16
Comparison of Preferred Alternative with Alternative 2 for the GCP

Land Classification	Preferred Alternative Estimated # of Resources	Alternative 2 Estimated # of Resources
GCP DFA	5,662	13,135
Conserved	69,920	150,595

Overall, Alternative 2 potentially impacts more NAE acres and cultural resources, but it also conserves more NAE acres and resources than the Preferred Alternative. Therefore, Alternative 2 is more protective than the Preferred Alternative.

IV.9.3.5 Alternative 3

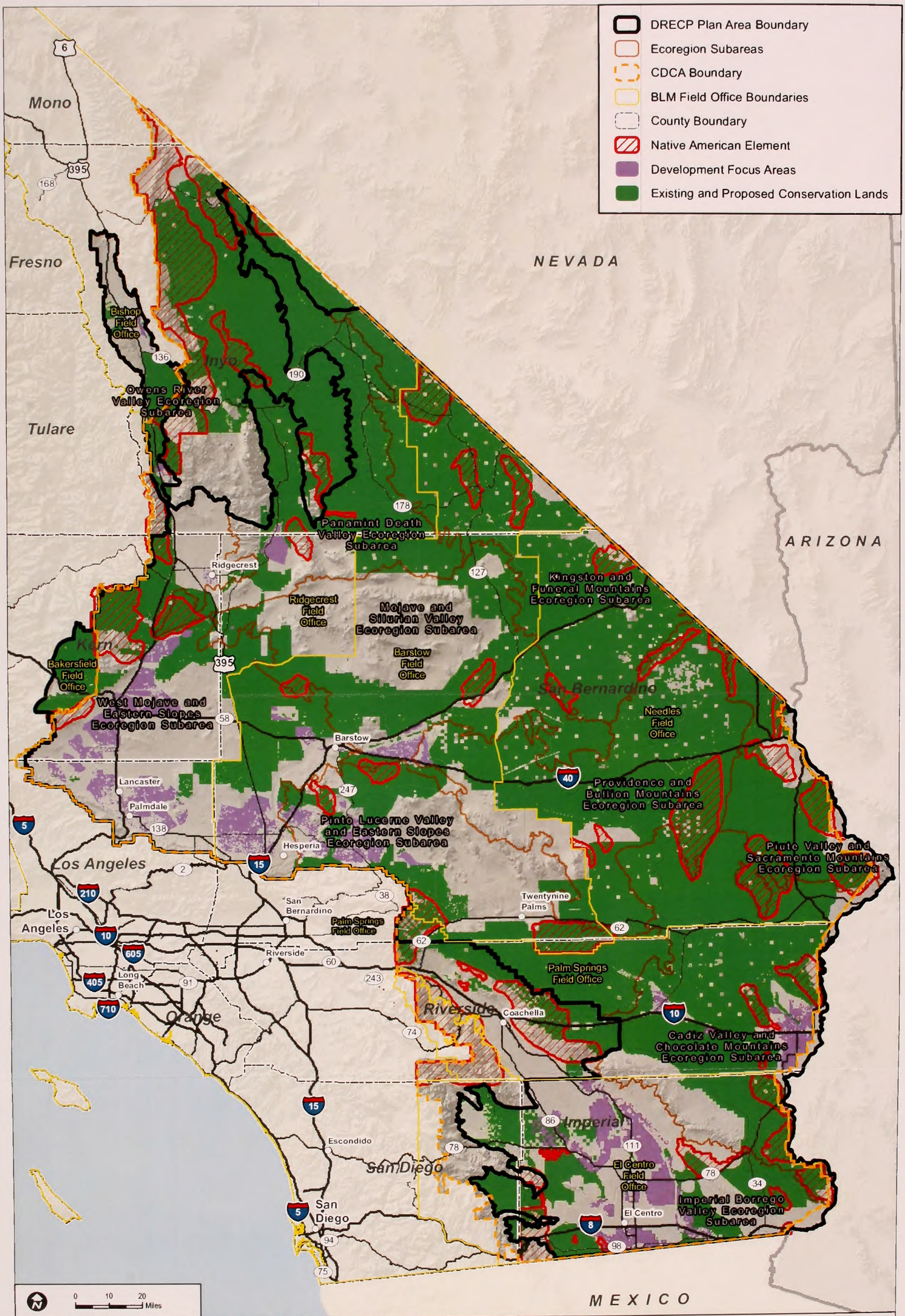
IV.9.3.5.1 Plan-wide Impacts of Implementing the DRECP: Alternative 3

IV.9.3.5.1.1 Plan-wide Impacts and Mitigation Measures from Renewable Energy and Transmission Development

Impact Assessment

The general issues of concern to tribes related to renewable energy development for Alternative 3 are the same as those described in Section IV.9.2.1 for Typical Impacts and in Section IV.9.3.1.1.1 for the No Action Alternative. Alternative 3 could directly impact culturally important resources on 1,255 acres of lands classified as NAEs and an estimated 13,265 cultural resource sites (Appendix R2, Table R2.9-28, and Table R2.8-28). Figure IV.9-5, Native American Element (Identified in the 1980 CDCA Plan), Alternative 3, illustrates the location of NAEs and the components of Alternative 3.

- While NAE designated lands and cultural resource sites are important, the metrics listed in the previous paragraph do not represent a complete list of places or areas important to tribes in the Plan Area. The identification, evaluation, and treatment of resources important to tribes would need to be conducted on a project-specific level to ensure that any unidentified resources are taken into account.
- Impacts TL-1 (Plan components could disproportionately affect resources of cultural and spiritual importance to tribes) and TL-2 (Costs associated with the participation in environmental documents required by the Plan would be disproportionately borne by tribal governments and organizations)
- As described in Section IV.3.2, all phases of renewable energy development under all of the alternatives could affect resources of cultural and spiritual importance to tribes and disproportionately impact tribal governments and organizations.



Sources: ESRI (2014); CEC (2013); BLM (2013); CDFW (2013); USFWS (2013)

FIGURE IV.9-5

Native American Element (Identified in the 1980 CDCAP), Alternative 3

Draft DRECP and EIR/EIS

August 2014

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Impacts in Study Area Lands

- Study Area Lands refer to three categories of lands: FAAs, SAAs, and DRECP Variance Lands. Development in any of the Study Area Lands could adversely impact resources important to tribes.
- **Future Assessment Areas.** In Alternative 3 11,000 acres are identified as FAAs (Table IV.1-2). This area is predicted to contain 220 archaeological and built-environment resources. These FAAs overlap with NAEs for 419 acres in the Pinto Lucerne Valley and the Eastern Slopes ecoregion subarea. This area is predicted to contain 8 archaeological and built-environment resources. Traditional cultural properties and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a more qualitative manner.
- **Special Analysis Areas (SAAs).** In Alternative 3, the two SAAs defined in the Preferred Alternative would be conservation lands. These 42,000 acres (Table IV.1-3) are predicted to contain 840 archaeological and built-environment resources. Traditional cultural properties and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a more qualitative manner.
- **DRECP Variance Lands.** Under Alternative 3, Variance Lands identified in the Preferred Alternative would be undesignated areas (Table IV.1-3).

Impact Reduction Strategies and Mitigation

- The implementation of the Plan would result in conservation of some desert lands as well as the development of renewable energy generation and transmission facilities on other lands. The renewable energy development covered by the Plan would be lessened in several ways. First, the Plan incorporates CMAs for each alternative, including specific biological reserve design components and LUPA components. Also, the implementation of existing laws, orders, regulations, and standards would reduce the impacts of project development. If significant impacts would still result after implementation of CMAs and compliance with applicable laws and regulations, then specific mitigation measures are recommended in this section.

Conservation and Management Actions

The conservation strategy for Alternative 3 (presented in Volume II, Section II.3.1.1) defines specific actions that would reduce the impacts of this alternative. The conservation strategy includes definition of the reserve design and specific CMAs for the Preferred Alternative.

While the CMAs were developed for BLM lands only, this analysis assumes that all CMAs would be applied also to nonfederal lands. However, those modifications are not presented here. It is important to note that cultural resources CMAs and NSHT CMAs associated with NLCS lands, and ACECs vary significantly by alternative.

All CMAs relevant to tribal interests are the same as the Preferred Alternative except for the following:

Planning Area–Wide National Conservation Land Management Direction

- **Cultural Resources** – Any adverse effect to historic properties resulting from allowable uses will be addressed through NHPA Section 106 and the implementing regulations at 36 CFR Part 800. Resolution of adverse effects will in part be addressed via alternative mitigation that includes regional synthesis and interpretation of existing archaeological data in addition to mitigation measures determined through the NHPA Section 106 consultation process.

Development Focus Areas

- **Soil, Water, and Water-Dependent Resources.** Would require that disturbance of sensitive soils be limited to 1% of the sensitive soil areas within a proposed project footprint. In addition, this would limit disturbance of desert pavement so that no more than 5% of the desert pavement within a proposed project footprint shall be disturbed for construction.

National Trails

- **NSHT Management Corridor width (see also maps)**: Establish an NSHT Management Corridor width generally 5 miles from the centerline for the Pacific Crest Trail and for high-potential route segments and other known historically significant segments of the NSHT. Additional segments of the NSHTs may be added to the Management Corridor as information becomes available on their qualifications as high-potential route segments. It is important to note these widths vary by alternative, resulting in varying amounts of conserved land.
- **Management of Trail Corridors:** Manage National Trails as components of BLM's National Landscape Conservation System. Where National Trails overlap other National Conservation Lands, the more protective CMAs or land use allocations would apply.

- **Lands and Realty:**
  - **ROWs**
    - **Site authorizations**: NSHT Management Corridors would be exclusion areas.
    - **Linear ROWs:** NSHT Management Corridors would be exclusion areas, except in designated transmission corridors. Exclude cultural landscapes, high-potential historic sites, and high-potential route segments identified along historic trails corridors from transmission except in approved transmission corridors. Where development affects NSHT management Corridors, an analysis must be performed to ensure that it does not substantially interfere with the nature and purposes of the trail and that mitigation/compensation results in a net benefit to the trail.
    - **Renewable Energy ROWs:** Exclude cultural landscapes, high-potential historic sites, and high-potential route segments identified along historic trails corridors from transmission except in approved DFAs. Where development affects trail management corridors, an analysis must be performed to ensure that the development does not substantially interfere with the nature and purposes of the trail, and that mitigation/compensation results in a net benefit to the trail.
  - Land tenure: Exchange, purchase, or donation of lands in NSHT Management Corridors would be allowed. Disposal of lands in NSHT Management Corridors would not be permitted.
- **Minerals**
  - **Locatable Minerals:** BLM would propose NSHT Management Corridors for withdrawal from mineral entry. Withdrawals would be subject to valid existing rights.
  - **Saleable Minerals**: Saleable mineral development in NSHT Management Corridors would be limited to use on local public works projects. Mitigation/compensation must result in net benefit to NSHT values.
  - **Leasable Minerals**: NSHT Management Corridors would be unsuitable for all leasing.
- **Recreation:** Competitive Special Recreation Permits would not be permitted. Commercial Special Recreation Permits would be limited to those uses that provide for enjoyment/appreciation of NSHT values, qualities, values, and associated settings and the primary use or uses.
- **Cultural Resources:** This CMA would also be applied to nonfederal lands but modified to meet the requirements of state law and CEC or other state lead agencies. This CMA also varies by alternative.

- Any adverse effects to historic properties resulting from allowable uses would be addressed through the NHPA Section 106 process and the implementing regulations at 36 CFR Part 800.

Laws and Regulations

Similar to the No Action Alternative, existing laws and regulations would reduce certain impacts of Plan implementation. Relevant regulations are presented in the Regulatory Setting in Volume III. The requirements of relevant laws and regulations are summarized for the No Action Alternative in Section IV.9.3.1.1.1.

Mitigation Measures

After implementation of the CMAs and existing laws and regulations, mitigation measures would be applied to further reduce some of the DRECP's adverse impacts. Recommended mitigation measures are presented for the Preferred Alternative in Section IV.9.3.1.1.1. Mitigation Measure TL-1a (Protect Tribal Resources) and Mitigation Measure TL-2a (Provide Support to Tribal Governments) are recommended to further reduce the adverse impacts of Alternative 3. The specific components of Mitigation Measures TL-1a and TL-2a would be developed in consultation with tribes and the State Historic Preservation Officer under NHPA Section 106.

IV.9.3.5.1.2 Impacts from Reserve Design

Under Alternative 3, tribal resources might benefit from increased protection of natural resources within conservation areas as well as from the CMAs defined above. Proposed ACEC and NLCS designations could provide protection for tribal resources; disturbance caps in these areas are designed to conserve and protect the resource values, and renewable energy development would be prohibited in these designations. Development in NLCS lands would be limited to 1% of total authorized disturbance, or to the level allowed by collocated ACEC/wildlife allocations, whichever is more restrictive. These disturbance caps and other management actions would minimize surface disturbance and thereby provide protection for cultural resources of interest to tribes.

Under Alternative 3, the NAE acres that fall within Reserve Design Lands are shown in Table R2.9-29 (Appendix R2). With Alternative 3, an estimated 76% of NAE acres (1,576,357) would fall within the reserve design and would not be subject to renewable energy development. While important, NAE areas do not represent a complete list of places or areas important to tribes. Unidentified resources important to tribes may be present.

An estimated 564,890 (or 44% of all known archaeological and built-environment resources) resources are within Reserve Design Lands (see Table R2.8-29 in Appendix R2).

Traditional cultural properties and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a more qualitative manner. Due to their location within the conservation reserve system, resources in these areas would not be subject to impacts from renewable energy development.

IV.9.3.5.2 Impacts of DRECP Land Use Plan Amendment on BLM Land: Alternative 3

This section addresses two components of effects of the BLM LUPA: the streamlined development of renewable energy and transmission on BLM land under the LUPA and the impacts of the amended land use plans themselves.

IV.9.3.5.2.1 Impacts from Renewable Energy and Transmission Development on BLM Land

Under Alternative 3, 636 NAE acres fall within DFA footprints (as shown in Table R2.9-30 of Appendix R2). Renewable energy and transmission development could impact this land. This represents less than 0.04% of the 1,517,751 NAE acres identified in the 1980 CDCA assessment. While important, CDCA-designated NAE areas do not represent a complete list of places or areas important to tribes. Unidentified resources important to tribes may be present.

An estimated 5,751 archaeological and built-environment resources are within DFA footprints on the BLM LUPA lands are shown in Table R2.8-30 (Appendix R2). Overall, approximately 1% of estimated archaeological and built-environment resources fall within DFAs in BLM LUPA lands under Alternative 3. Traditional cultural properties and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a more qualitative manner.

IV.9.3.5.2.2 Impacts of Changes to BLM Land Designations

The proposed changes to BLM land designations would have both beneficial and adverse effects on tribal resources. Proposed ACEC and NLCS designations would establish disturbance caps in areas designed to conserve and protect resource values, and renewable energy development would be prohibited in these designations. Development in NLCS lands would be limited to 1% of total authorized disturbance, or to the level allowed by collocated ACEC/wildlife allocations, whichever is more restrictive. These disturbance caps and other management actions, including the CMAs defined above, would minimize surface disturbance and thereby provide protection for tribal resources.

Under Alternative 3, NAE acres found within BLM land designations on BLM LUPA lands are shown in Table R2.9-31 (Appendix R2), and archaeological and built-environment resources expected within BLM Land Designations on BLM LUPA lands are shown in Table R2.8-31 (Appendix R2). BLM land designations include NLCS, ACEC, wildlife allocation, SRMA, land with wilderness characteristics, and NSHT Management Corridor. An estimated 586,141 archaeological and built-environment resources are on BLM LUPA land designation acres under Alternative 3. The majority of NAE acres (350,731) and estimated archaeological and built-environment resources (171,472) fall within NLCS lands. About 350,731 NAE acres and 93,324 cultural resources are on existing and proposed ACEC lands. Traditional cultural properties and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a more qualitative manner.

In Alternative 3, the NSHT Management Corridor is generally 5 miles from the centerline for the Pacific Crest Trail, and for high-potential route segments and other known historically significant segments of NSHTs. Additional segments of NSHTs may be added to the Management Corridor as information becomes available on their qualifications as high-potential route segments. As a result, an estimated 6,337 cultural resources would be protected. Although important, NAE areas do not represent a complete list of places or areas important to tribes. Unidentified resources important to tribes may be present.

IV.9.3.5.3 Impacts of Natural Community Conservation Plan: Alternative 3

The impacts of the NCCP for Alternative 3 would be the same as those defined in Section IV.9.3.2.1 for the Plan-wide analysis.

IV.9.3.5.4 Impacts of General Conservation Plan: Alternative 3

The impacts of the GCP would be similar to the impacts defined in Section IV.9.3.5.1 for the Plan-wide analysis, but they would occur on nonfederal lands only. For Alternative 3, 619 NAE acres fall within the DFA footprints (see Table R2.9-32 in Appendix R2). Of the GCP lands, approximately 38% (77,891 NAE acres) would be within conservation lands (see Table R2.9-33).

An estimated 7,485 archaeological and built-environment resources could fall within the DFA footprints (see Table R2.8-32). This is 1.4% of the resources within the GCP lands. Table R2.8-33 has the number of estimated archaeological and built-environment resources within the GCP Reserve Design Lands under Alternative 3. Of the GCP lands, approximately 13% would be within conservation acres. Traditional cultural properties and landscapes are not included in this calculation as these types of resources are not part

of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a more qualitative manner.

IV.9.3.5.5 Impacts Outside the Plan Area

IV.9.3.5.5.1 Impacts of Transmission Outside the Plan Area

The impacts of transmission outside the Plan Area on tribal interests would be the same under all alternatives. These impacts are as described for the No Action Alternative in Section IV.9.3.1.5, Impacts of Transmission Outside the Plan Area in No Action Alternative.

IV.9.3.5.5.2 Impacts of BLM LUPA Decisions Outside the Plan Area

Under Alternative 3, NAE acres found within BLM land designations outside the Plan Area are shown in Table R2.9-34 (Appendix R2) and archaeological and built-environment resources expected within BLM land designations outside the Plan Area are shown in Table R2.8-34 (Appendix R2). There are 88,802 NAE acres on proposed NLCS lands, 108,202 NAE acres on existing and proposed ACECs, and 48,656 NAE acres within NSHT Management Corridors.

There are an estimated 21,338 archaeological and built-environment resources on BLM LUPA lands outside the Plan Area. Of those archaeological and built-environment resources, 3,434 are on proposed NLCS lands, with 5,380 on existing and proposed ACEC lands and 1,224 within NSHT Management Corridors. Traditional cultural properties and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a more qualitative manner.

In Alternative 3, the NSHT Management Corridor is generally 5 miles from the centerline for the Pacific Crest Trail, and for high-potential route segments and other known historically significant segments of NSHTs. Additional segments of NSHTs may be added to the management corridor as information becomes available on their qualifications as high-potential route segments. As a result, an estimated 973 cultural resources would be protected. Impacts of BLM land designations outside the Plan Area to NAE acres and all kinds of cultural resources would be the same as those described in Section IV.8.3.4.1.2.

IV.9.3.5.6 CEQA Significance Determination for Alternative 3

The CEQA Significance Determinations listed in Section IV.9.3.1.6 also apply to Alternative 3. However, compared with the Preferred Alternative, there are an estimated 12,193 archaeological and built-environment resources located in the DFAs, and an estimated 773,112 resources on 13,925,540 acres of Reserve Design Land. Traditional cultural

properties and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a more qualitative manner.

IV.9.3.5.7 Comparison of Alternative 3 with Preferred Alternative

Chapter IV.27 presents a comparison of all action alternatives and the No Action Alternative across all disciplines. This section summarizes the comparison of Alternative 3 with the Preferred Alternative.

IV.9.3.5.7.1 Alternative 3 Compared with Preferred Alternative for Plan-wide DRECP

Table IV.9-17 compares acres of NAE within the DFA footprints and the reserve design for the Preferred Alternative and Alternative 3 for the Plan-wide DRECP.

Table IV.9-17
Comparison of Preferred Alternative with Alternative 3 for Plan-wide DRECP

Land Classification	Preferred Alternative NAE Acres	Alternative 3 NAE Acres
DFA	1,994	1,255
Conservation	1,655,877	1,576,357

Comparison of Alternative 3 with the Preferred Alternative yields few definitive conclusions regarding impacts to tribal resources overall; however, the following conclusions regarding sensitive resources in NAE areas can be made:

- The Preferred Alternative would have a higher potential for impacts to sensitive resources on NAE lands than Alternative 3 because the Preferred Alternative has more NAE acres within the DFA footprints than Alternative 3.
- The Preferred Alternative would protect more NAE acres than Alternative 3 as the Preferred Alternative contains more NAE acres within the reserve design.

Table IV.9-18
Comparison of Preferred Alternative with the Alternative 3 for Plan-wide DRECP

	Preferred Alternative	Alternative 3
Number of resources in DFAs	12,543	13,265
Number of resources conserved in Reserve Design Lands	576,735	737,263

Table IV.9-18
Comparison of Preferred Alternative with the Alternative 3 for Plan-wide DRECP

	Preferred Alternative	Alternative 3
Plan-wide CMAs (general)	Reduce impacts to cultural resources	Reduce impacts to cultural resources
Cultural resources CMAs for NCLS lands only.	With exception of research, no adverse effects to historic properties authorized.	Adverse effects to historic properties resolved through NHPA Section 106 and regional synthesis and interpretation.
CMAs for National Historic Trails	No adverse effects to NHT and NHT/historic properties authorized. All NHT segments assumed to be eligible for NRHP pending evaluation.	Adverse effects to historic properties resolved through NHPA Section 106.
NSHT Management Corridor width and number of resources conserved	5 miles on both sides of centerline 28,437	5 miles on both sides of centerline 18,052

The Preferred Alternative would impact fewer cultural resources in the DFA footprints than Alternative 3. In contrast, Alternative 3 would conserve more resources in the Reserve Design Lands and more resources in the NSHT Management Corridors. In addition, the CMAs for the Preferred Alternative are significantly more protective than for Alternative 3.

Overall, although the number of resources conserved by Alternative 3 is larger, the number of NAE acres on conservation lands is greater and the CMAs are more protective in the Preferred Alternative. Therefore, the Preferred Alternative is more protective to NAE lands and cultural resources than Alternative 3.

Geographic Distinctions

In this section, alternatives vary in two ways: (a) by the presence or absence of NAE acres in the geographic areas of interest and potential impacts there, and (b) by potential impacts to archaeological and built-environment resources in these same locations.

Under the Preferred Alternative, the Silurian Valley would be an SAA. Under Alternative 3, this location would be a BLM conservation allocation. No NAE acres have been identified in this location (Figure III.9-1); however, that does not mean that no resources important to tribes are present. Therefore, Alternative 3 would protect more resources important to tribes in this location than the Preferred Alternative.

Under the Preferred Alternative, the Hidden Hills area of Inyo County would be a DFA. Under Alternative 3, this location would be a Conservation Planning Area. Based on previous studies associated with a proposed solar project in this location, the Hidden Hills area is known to be very culturally sensitive because of the presence of a segment of the Salt Song Trail, Route 66, and an NSHT. In addition, there are NAE acres in this location (Figure III.9-1). Overall, Alternative 3 would protect more resources important to tribes in this location than the Preferred Alternative.

Under the Preferred Alternative, the Notch in the Park would be an FAA. Under Alternative 3, this location would be undesignated. No NAE acres have been identified in this location (Figure III.9-1); however, that does not mean that no resources important to tribes are present. In each alternative, this location could either be developed or conserved, therefore there is no difference between the alternatives for resources important to tribes.

Under the Preferred Alternative, the area north of Tehachapi would be an FAA. Under Alternative 3, this location would be undesignated. The majority of this area consists of NAE acres (Figure III.9-1). Overall, for each alternative, this location could either be developed or conserved, therefore there is no difference between the alternatives for resources important to tribes.

Under the Preferred Alternative, the area east of Twentynine Palms would be an FAA. Under Alternative 3, this location would be undesignated. There are NAE acres in this location (Figure III.9-1). In each alternative, this location could either be developed or conserved, therefore there is no difference between the alternatives for resources important to tribes.

Under both the Preferred Alternative and Alternative 3, Owens Lake would be a BLM conservation allocation. There are NAE acres in this location (Figure III.9-1), and dry lakes in this part of California are known to be very culturally sensitive. In addition, the Owens River Valley ecoregion subarea has the highest density of cultural resources of all of the DRECP ecoregion subareas (1.76 resources per acre). Overall, both alternatives would protect resources important to tribes in this location equally.

Under the Preferred Alternative, Searles Lake between Fort Irwin and China Lake would be undesignated. Under Alternative 3, this location would be a DFA. There are NAE acres in this location (Figure III.9-1). Therefore, the Preferred Alternative would be more likely to preserve resources important to tribes in this location than would Alternative 3.

Under the Preferred Alternative, the area along U.S. Route 395 north of Edwards Air Force Base would be an SAA. Under Alternative 3, this location would be a BLM conservation allocation. No NAE acres have been identified in this location (Figure III.9-1); however, that

does not mean that no resources important to tribes are present. Therefore, Alternative 3 would be more likely to preserve resources important to tribes in this location than the Preferred Alternative.

IV.9.3.5.7.2 Alternative 3 Compared with Preferred Alternative for the BLM Land Use Plan Amendment

While the number of resources conserved by each kind of BLM land designation, cultural resources CMAs apply to NLCS, ACECs and Trail Management Corridors; and so the importance of those designations are emphasized here.

Table IV.9-19 compares the acres of NAEs within ACECs, NLCS lands, NSHT Management Corridors, and DFAs on BLM LUPA lands for the Preferred Alternative and Alternative 3.

Table IV.9-19
Comparison of Preferred Alternative with Alternative 3 for BLM LUPA

Land Classification	Preferred Alternative NAE Acres	Alternative 3 NAE Acres
ACEC	319,952	350,731
NLCS land	433,447	396,848
NSHT Management Corridor	162,358	316,860
DFA on BLM LUPA land	991	636

The following conclusions regarding sensitive resources in NAE areas for BLM LUPA lands can be made:

- Alternative 3 contains more NAE acres on conservation lands than the Preferred Alternative.
- The Preferred Alternative would have a higher potential for impacts to sensitive resources on NAE lands than Alternative 3 because the Preferred Alternative contains more NAE acres within the DFA footprints than Alternative 3.

Table IV.9-20
Comparison of Preferred Alternative with Alternative 3 for the BLM Land Use Plan Amendment

	Preferred Alternative Estimated # of Resources	Alternative 3 Estimated # of Resources
SRMA	68,801	69,111
NLCS	176,810	171,472

Table IV.9-20
Comparison of Preferred Alternative with Alternative 3 for the BLM Land Use Plan Amendment

	Preferred Alternative Estimated # of Resources	Alternative 3 Estimated # of Resources
Existing and Proposed ACEC	84,542	93,324
Wildlife Allocation	742	526
Land with wilderness characteristics	11,237	21,605
NSHT Management Corridors	28,437	215,632
BLM LUPA land in DFA footprint	6,855	5,751

Overall, while a larger number of resources and a greater amount of NAE land would be protected by Alternative 3, the Preferred Alternative protects them more effectively through CMAs.

IV.9.3.5.7.3 Alternative 3 Compared with Preferred Alternative for NCCP

The impacts of the NCCP for Alternative 3 are the same as those defined in Section IV.9.3.2.1 for the Plan-wide analysis. As a result, the comparison of Alternative 3 with the Preferred Alternative for the NCCP is the same as described above for Plan-wide DRECP.

IV.9.3.5.7.4 Alternative 3 Compared with Preferred Alternative for the GCP

Table IV.9-21 compares the acres of NAEs within the DFA footprints and the reserve design for the Preferred Alternative and Alternative 3.

Table IV.9-21
Comparison of Preferred Alternative with Alternative 3 for GCP Lands

Land Categories	Preferred Alternative NAE Acres	Alternative 3 NAE Acres
GCP DFAs	1,004	619
Conserved	76,654	77,891

The following conclusions regarding sensitive resources in NAE areas for GCP lands can be made:

- The Preferred Alternative has a higher potential for impacts to sensitive resources on NAE lands than Alternative 3 as the Preferred Alternative contains more NAE acres within the DFA footprints than Alternative 3.
- Alternative 3 would protect more acres of NAE lands than the Preferred Alternative as Alternative 3 contains more NAE acres within the reserve design. However, it is important to note that since the resources present on the NAE acres are not a complete list of places important to tribes, the value of this comparison is uncertain.

Table IV.9-22
Comparison of Preferred Alternative with the Alternative 3 for the GCP

Land Classification	Preferred Alternative Estimated # of Resources	Alternative 3 Estimated # of Resources
GCP DFA	5,662	7,485
Conserved	69,920	69,920

Overall, both alternatives conserve the same number of resources and roughly the same number of NAE acres. However, the Preferred Alternative contains slightly more NAE acres within the DFA footprints; and Alternative 3 could impact slightly more cultural resources than the Preferred Alternative. Therefore, the Preferred Alternative is slightly more protective of resources important to tribes than Alternative 3.

IV.9.3.6 Alternative 4

IV.9.3.6.1 Plan-wide Impacts of Implementing the DRECP: Alternative 4

IV.9.3.6.1.1 Plan-wide Impacts and Mitigation Measures from Renewable Energy and Transmission Development

Impact Assessment

The general issues of concern to tribes related to renewable energy development for Alternative 4 are the same as those described in Section IV.9.2.1 for Typical Impacts and in Section IV.9.3.1.1.1 for the No Action Alternative. Alternative 4 could directly impact culturally important resources on 2,226 acres of lands classified as NAEs and an estimated 15,787 cultural resource sites (Appendix R2, Table R2.9-35 and Table R2.8-35). Figure IV.9-6, Native American Element (Identified in the 1980 CDCA Plan), Alternative 4, illustrates the location of NAEs and the components of Alternative 4.

While NAE designated lands and cultural resource sites are important, the metrics listed in the previous paragraph do not represent a complete list of places or areas important to tribes in the Plan Area. The identification, evaluation, and treatment of resources important to tribes would need to be conducted on a project-specific level to ensure that any unidentified resources are taken into account.

Under Alternative 4, an estimated 15,787 archaeological and built-environment resources would fall within DFAs (see Table R2.8-35 in Appendix R2). Traditional cultural properties and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a more qualitative manner. Each impact is described below.

Impacts TL-1 (Plan components could disproportionately affect resources of cultural and spiritual importance to tribes) and TL-2 (Costs associated with the participation in environmental documents required by the Plan would be disproportionately borne by tribal governments and organizations).

As described in Section IV.9.2, all phases of renewable energy development under all of the alternatives could affect resources of cultural and spiritual importance to tribes and disproportionately impact tribal governments and organizations.

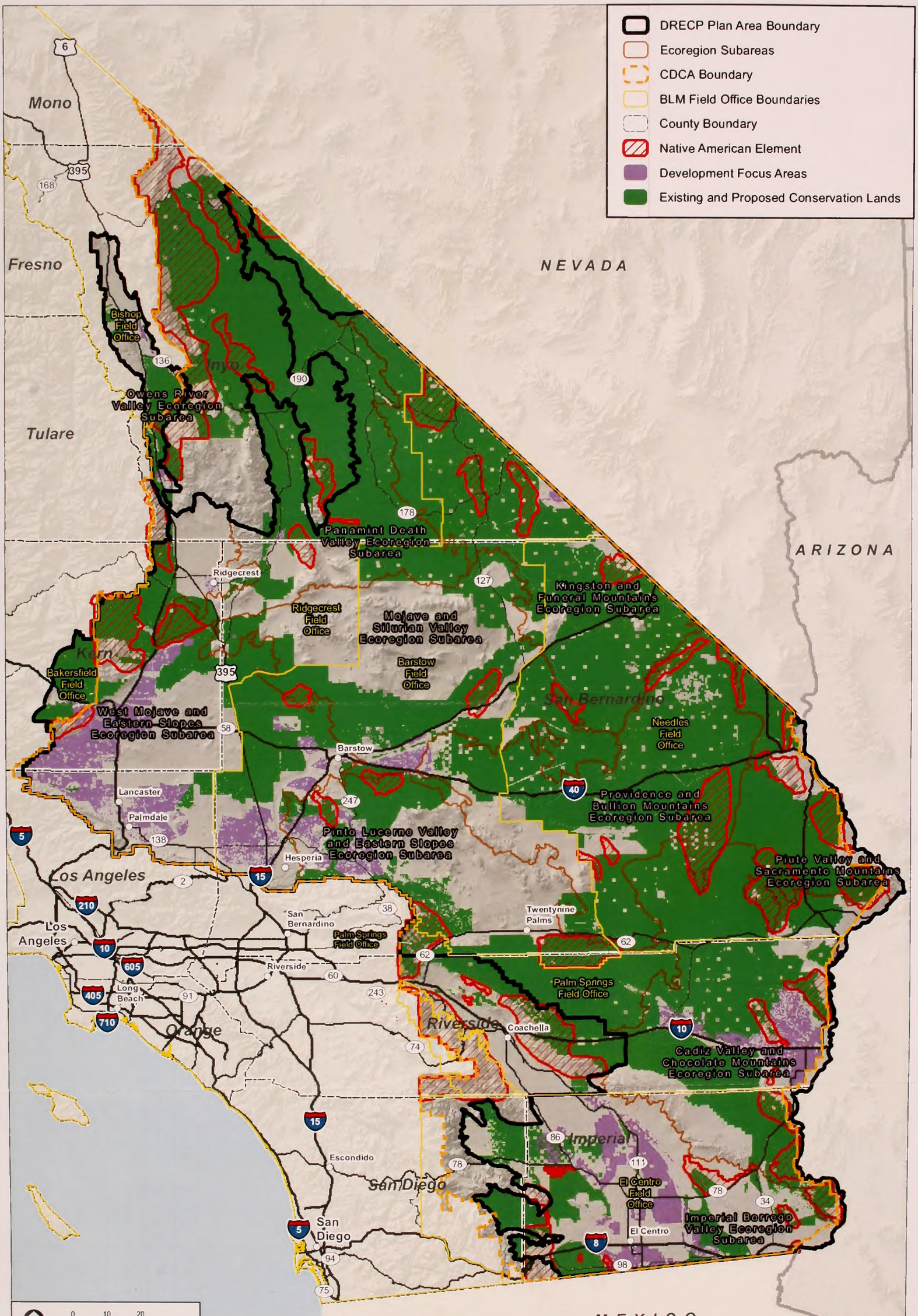
Impacts in Study Area Lands

Study Area Lands refer to three categories of lands: FAAs, SAAs, and DRECP Variance Lands. Development in any of the Study Area Lands could adversely impact resources important to tribes.

Future Assessment Areas. In Alternative 4, all FAAs identified in the Preferred Alternative would be undesignated areas except that portions of the FAA south of Historic Route 66 would become DRECP Variance Lands (Table IV.1-2).

Special Analysis Areas (SAAs). In Alternative 4, portions of SAAs identified in the Preferred Alternative would be DRECP Variance Lands as described in the following paragraph, but the majority of these areas would be conservation lands (near U.S. Route 395) and undesignated areas (near Fort Irwin) (Table IV.1-3).

DRECP Variance Lands. Under Alternative 4, 588,000 acres would be Variance Lands. This area is predicted to contain 11,760 archaeological and built-environment resources. These lands overlap with 60, 696 NAE acres. This area is predicted to contain 1,214 archaeological and built-environment resources (Table IV.1-4).



Sources: ESRI (2014); CEC (2013); BLM (2013); CDFW (2013); USFWS (2013)

FIGURE IV.9-6

Native American Element (Identified in the 1980 CDCAP), Alternative 4

Draft DRECP and EIR/EIS

August 2014

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Impact Reduction Strategies and Mitigation

The implementation of the Plan would result in conservation of some desert lands as well as the development of renewable energy generation and transmission facilities on other lands. The impacts of the renewable energy development covered by the Plan would be lessened in several ways. First, the Plan incorporates CMAs for each alternative, including specific biological reserve design components and LUPA components. Also, the implementation of existing laws, orders, regulations, and standards would reduce the impacts of project development. If significant impacts would still result after implementation of CMAs and compliance with applicable laws and regulations, then specific mitigation measures are recommended in this section.

Conservation and Management Actions

The conservation strategy for Alternative 4 (presented in Volume II, Section II.3.1.1) defines specific actions that would reduce the impacts of this alternative. The conservation strategy includes definition of the reserve design and specific CMAs for the Preferred Alternative. While the CMAs were developed for BLM lands only, this analysis assumes that all CMAs would be applied also to nonfederal lands. As such, the details of these CMAs would be modified to meet the requirements of state law, CEC or other appropriate state lead agencies. However, those modifications are not presented here. It is important to note that cultural resources CMAs and NSHT CMAs associated with NLCS lands and ACECs vary significantly by alternative.

All CMAs relevant to tribal interests are the same as the Preferred Alternative except for the following:

<u>Planning Area–wide National Conservation Land Management Direction</u>

- **Cultural Resources** – Any adverse effects to historic properties resulting from allowable uses will be addressed through the Section 106 process of the NHPA and the implementing regulations at 36 CFR Part 800. Resolution of adverse effects will in part be addressed via compensatory mitigation that includes either protection of resources of importance to tribes or acquisition of comparable sites into public ownership similar to those that are going to be destroyed.

<u>Development Focus Areas</u>

- **Soil, Water, and Water-Dependent Resources**. Would require that disturbance of sensitive soils be limited to 20% of the sensitive soil areas within a proposed project footprint. In addition, this would limit disturbance of desert pavement so that no

more than 5% of the desert pavement within a proposed project footprint shall be disturbed for construction.

National Trails

- **Management Corridor Width (see also maps)**: Establish an NSHT Management Corridor width generally 1 mile from centerline of the trail. It is important to note these widths vary by alternative, resulting in varying amounts of conserved land.
- **Management of Trail Corridors:** Manage NSHTs as components of BLM's NLCS. Where NSHTs overlap other National Conservation Lands, the more protective CMAs or land use allocations would apply.
- **Lands and Realty:**
  - **ROWs**
    - **Site Authorizations**: NSHT Management Corridors would be avoidance areas. Sites' rights-of-way would require mitigation/compensation resulting in net benefit to the NSHT.
    - **Linear ROWs:** NSHT Management Corridors would be avoidance areas except in designated transmission corridors. Exclude cultural landscapes, high-potential historic sites, and high-potential route segments identified along historic trails corridors from transmission except in approved transmission corridors. Where development affects national scenic or historic trail management corridors, an analysis must be performed to ensure that the development does not substantially interfere with the nature and purposes of the trail, and that mitigation/compensation results in a net benefit to the trail
    - **Renewable Energy ROWs**: Exclude cultural landscapes, high-potential historic sites, and high-potential route segments identified along historic trails corridors from transmission except in approved DFAs. Where development affects NSHT Management Corridors, an analysis must be performed to ensure that it does not substantially interfere with the nature and purposes of the trail and that mitigation/compensation results in a net benefit to the trail.
  - **Land tenure:** Exchange, purchase, donation would be permitted to acquire lands within NSHT. Disposal would be permitted if it results in net benefit to trail

values through acquisition or other compensation. Lands within the National Trail Management Corridors would be retained.[1]

- **Minerals**
  - **Locatable Minerals**: For the purposes of locatable minerals, NSHT Management Corridors would be treated as "controlled" or "limited" use areas in the CDCA, requiring a Plan of Operations for greater than casual use under 43 CFR 3809.11.
  - **Saleable Minerals**: NSHT Management Corridors would be available for saleable mineral development
  - **Leasable Minerals**: NSHT Management Corridors may be available for geothermal leasing; however, these lands may only be offered for lease with a special stipulation to protect the appropriate resources as defined in the 2008 PEIS for Geothermal Leasing in the Western United States. Special stipulations that provide protections greater than the standard lease terms may include Timing Limitations (TL), Controlled Surface Use (CSU), or No Surface Occupancy (NSO) Lease Stipulations. National Conservation Lands values must be protected or enhanced through mitigation/compensation.
- **Recreation and Visitor Services:** Competitive and Commercial Special Recreation Permits are permitted if they do not substantially interfere with the nature and the purposes of the NSHT.
- **Cultural Resources:** This CMA would also be applied to nonfederal lands but modified to meet the requirements of state law and CEC or other state lead agencies. This CMA also varies by alternative.
  - Any adverse effects to historic properties resulting from allowable uses would be addressed through the NHPA Section 106 process and the implementing regulations at 36 CFR Part 800.

Laws and Regulations

Similar to the No Action Alternative, existing laws and regulations would reduce certain impacts of Plan implementation. Relevant regulations are presented in the Regulatory Setting in Volume III. The requirements of relevant laws and regulations are summarized for the No Action Alternative in Section IV.9.3.1.1.1.

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[1] See BLM Manual 6280, 4.2.E.5.i.e. The land use plan and associated NEPA analysis should consider the following management decisions for lands and realty decisions for National Trails: Retention of public lands within a National Trail Management Corridor in accordance with Section 203 of FLPMA, as classified in accordance with 43 CFR 2420, and ensure public lands within the National Trail Management Corridor are not contained on Resource Management Plan disposal lists.

Mitigation Measures

After implementation of the CMAs and existing laws and regulations, mitigation measures would be applied to further reduce some of the DRECP's adverse impacts. Recommended mitigation measures are presented for the Preferred Alternative in Section IV.9.3.1.1.1. Mitigation Measure TL-1a (Protect Tribal Resources) and Mitigation Measure TL-2a (Provide Support to Tribal Governments) are recommended to further reduce the adverse impacts of Alternative 4. The specific components of Mitigation Measures TL-1a and TL-2a would be developed in consultation with tribes and the State Historic Preservation Officer under NHPA Section 106.

IV.9.3.6.1.2 Impacts from Reserve Design

Under Alternative 4, tribal resources might benefit from increased protection of natural resources within conservation areas as well as from the CMAs defined above. Proposed ACEC and NLCS designations could provide protection for tribal resources; disturbance caps in these areas are designed to conserve and protect the resource values, and renewable energy development would be prohibited in these designations. Development in NLCS lands would be limited to 1% of total authorized disturbance, or to the level allowed by collocated ACEC/wildlife allocations, whichever is more restrictive. These disturbance caps and other management actions would minimize surface disturbance and thereby provide protection for cultural resources.

Under Alternative 4, the NAE acres within Reserve Design Lands are shown in Table R2.9-36 (Appendix R2). With Alternative 4, an estimated 74% of NAE acres (1,538,012) would fall within the reserve design and would not be subject to renewable energy development. While important, NAE areas do not represent a complete list of places or areas important to tribes. Unidentified resources important to tribes may be present.

An estimated 534,177 (or 41% of all known archaeological and built-environment resources) resources would fall within Reserve Design Lands (see Table R2.8-36 in Appendix R2). Traditional cultural properties and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a more qualitative manner. Due to their location within the conservation reserve system, resources in these areas would not be subject to impacts from renewable energy development.

IV.9.3.6.2 Impacts of DRECP Land Use Plan Amendment on BLM Land: Alternative 4

This section addresses two components of effects of the BLM LUPA: the streamlined development of renewable energy and transmission on BLM land under the LUPA and the impacts of the amended land use plans themselves.

IV.9.3.6.2.1 Impacts from Renewable Energy and Transmission Development on BLM Land

Under Alternative 4, 1,029 NAE acres are within DFA footprints (as shown in Table R2.9-37 of Appendix R2). Renewable energy and transmission development could impact this land. This represents less than 0.07% of the 1,517,751 NAE acres identified in the 1980 CDCA assessment.

An estimated 7,901 archaeological and built-environment resources are within DFA footprints on the BLM LUPA lands. They are shown in Table R2.8-37 (Appendix R2). Overall, approximately 1.3% of estimated cultural resources fall within DFAs in BLM LUPA lands under Alternative 4. Traditional cultural properties and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a more qualitative manner.

IV.9.3.6.2.2 Impacts of Changes to BLM Land Designations

The proposed changes to BLM land designations would have both beneficial and adverse effects on tribal resources. Proposed ACEC and NLCS designations would establish disturbance caps in areas designed to conserve and protect resource values. Development in NLCS lands would be limited to 1% of total authorized disturbance, or to the level allowed by collocated ACEC/wildlife allocations, whichever is more restrictive. These disturbance caps and other management actions, including the CMAs defined above, would minimize surface disturbance and thereby provide protection for tribal resources.

Under Alternative 4, NAE acres found within BLM land designations on BLM LUPA lands are shown in Table R2.9-38 (Appendix R2); and archaeological and built-environment resources expected within BLM Land Designations on BLM LUPA lands are shown in Table R2.8-38 (Appendix R2). BLM land designations include NLCS, ACEC, wildlife allocation, SRMA, lands with wilderness characteristics, and NSHT Management Corridor. An estimated 586,141 archaeological and built-environment resources are on BLM LUPA land designation acres under Alternative 4. The majority of NAE acres (355,845) and estimated archaeological and built-environment resources (171,472) fall within NLCS lands. About 340,834 NAE acres and 92,960 cultural resources are on existing and proposed ACEC lands. Traditional cultural properties and landscapes are not included in this calculation as these

types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a more qualitative manner. In Alternative 4, the NSHT Management Corridor is 1 mile on either side of the centerline. As a result, an estimated 889 cultural resources would be protected. Although important, NAE areas do not represent a complete list of places or areas important to tribes. Unidentified resources important to tribes may be present.

IV.9.3.6.3 Impacts of Natural Community Conservation Plan: Alternative 4

The impacts of the NCCP for Alternative 4 would be the same as those defined in Section IV.9.3.2.1 for the Plan-wide analysis.

IV.9.3.6.4 Impacts of General Conservation Plan: Alternative 4

The impacts of the GCP would be similar to the impacts defined in Section IV.9.3.6.1 for the Plan-wide analysis, but they would occur on nonfederal lands only. For Alternative 4, 1,197 NAE acres fall within the DFA footprints (see Table R2.9-39 in Appendix R2). Of the GCP lands, approximately 38% (77,739 NAE acres) would be within conservation lands (see Table R2.9-40).

Archaeological and built-environment resources found within GCP lands are shown in Table R2.8-39. For the GCP lands under Alternative 4, an estimated 7,863 archaeological and built-environment resources could fall within the technology footprints in the DFA footprints. This is 1.5% of the archaeological and built-environment resources within the GCP lands. Table R2.8-40 has the number of estimated archaeological and built-environment resources within the GCP Reserve Design Lands under Alternative 4. Of the GCP lands, approximately 11% would be within conservation acres. Traditional cultural properties and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a more qualitative manner.

IV.9.3.6.5 Impacts Outside the Plan Area

IV.9.3.6.5.1 Impacts of Transmission Outside the Plan Area

The impacts of transmission outside the Plan Area on tribal interests would be the same under all alternatives. These impacts are as described for the No Action Alternative in Section IV.9.3.1.5, Impacts of Transmission Outside the Plan Area in No Action Alternative.

IV.9.3.6.5.2 Impacts of BLM LUPA Decisions Outside the Plan Area

Under Alternative 4, NAE acres found within BLM land designations outside the Plan Area are shown in Table R2.9-41 (Appendix R2); and archaeological and built-environment resources expected within BLM Land Designations outside the Plan Area are shown in Table R2.8-41 (Appendix R2). There are 88,765 NAE acres on proposed NLCS lands, 108,198 NAE acres on existing and proposed ACEC lands, and 13,131 NAE acres within NSHT Management Corridors.

There are 21,338 archaeological and built-environment resources on BLM LUPA lands outside the Plan Area. Of those archaeological and built-environment resources, 3,434 are on proposed NLCS lands, with 5,380 on existing and proposed ACEC lands and 1,224 within NSHT Management Corridors. Traditional cultural properties and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a more qualitative manner. In Alternative 4 the NSHT Management Corridor is generally 1 mile on either side of the centerline. As a result, an estimated 263 cultural resources would be protected. Impacts of BLM land designations outside the Plan Area to NAE acres and all kinds of cultural resources would be the same as those described in Section IV.8.3.4.1.2.

IV.9.3.6.6 CEQA Significance Determination for Alternative 4

The CEQA Significance Determinations listed in Section IV.9.3.1.6 also apply to Alternative 4. However, compared with the Preferred Alternative, there are an estimated 13,941 archaeological and built-environment resources in the DFAs, and an estimated 756,856 resources on 13,279,016 acres of Reserve Design Land. Traditional cultural properties and landscapes are not included in this calculation as these types of resources are not part of the dataset used to quantify cultural resources. Impacts to these resources are therefore characterized in a more qualitative manner.

IV.9.3.6.7 Comparison of Alternative 4 with Preferred Alternative

Chapter IV.27 presents a comparison of all action alternatives and the No Action Alternative across all disciplines. This section summarizes the comparison of Alternative 4 with the Preferred Alternative.

IV.9.3.6.7.1 Alternative 4 Compared with Preferred Alternative for Plan-wide DRECP

Table IV.9-23 compares NAE acres within the DFA footprints and the reserve design for the Preferred Alternative and Alternative 4 for the Plan-wide DRECP.

Table IV.9-23
Comparison of Preferred Alternative with Alternative 4 for Plan-Wide DRECP

Land Classification	Preferred Alternative NAE Acres	Alternative 4 NAE Acres
DFA	1,994	2,226
Conserved in Reserve Design Lands	1,655,877	1,538,012

Comparison of Alternative 4 with the Preferred Alternative yields few definitive conclusions regarding impacts to tribal resources overall; however, the following conclusions regarding sensitive resources in NAE areas can be made:

- Alternative 4 has a higher potential for impacts to sensitive resources on NAE lands than Preferred Alternative as Alternative 4 contains more NAE acres within the DFA footprints than the Preferred Alternative.
- The Preferred Alternative would protect more NAE acres than Alternative 4 as the Preferred Alternative contains more NAE acres within the reserve design.

Table IV.9-24 compares the CMAs and number of cultural resources for the Plan-wide DRECP for the Preferred Alternative and Alternative 4.

Table IV.9-24
Comparison of Preferred Alternative with Alternative 4 for Plan-wide DRECP

Resources	Preferred Alternative	Alternative 4
Number of resources in DFAs	12,543	15,787
Number of resources conserved in Reserve Design Lands	576,735	698,487
Plan-wide CMAs (general)	Reduce impacts to cultural resources	Reduce impacts to cultural resources
Cultural resources CMAs within NCLS lands only	With exception of research, no adverse effects to historic properties authorized.	Adverse effects to historic resources resolved through NHPA Section 106 and compensatory mitigation.
CMAs for National Historic Trails	No adverse effects to NHT and NHT/historic properties authorized. All NHT segments assumed to be eligible for NRHP pending evaluation.	Adverse effects to historic resources resolved through NHPA Section 106
NSHT Management Corridor width and number of resources conserved	5 miles on both sides of centerline 28,437	1 mile on both sides of centerline 7,164

The Preferred Alternative would impact fewer cultural resources in the DFA footprints than Alternative 4. In contrast, Alternative 4 would conserve more resources in the Reserve Design Lands but conserve fewer resources in the NSHT Management Corridors. In addition, the CMAs for the Preferred Alternative are significantly more protective than for Alternative 4.

Overall, the number of NAE acres conserved by Alternative 4 is smaller yet the number of resources potentially impacted is also smaller. Furthermore, the number of resources conserved by Alternative 4 is larger, yet the number of resources potentially impacted is larger. However, the CMAs in the Preferred Alternative are more protective. Therefore the Preferred Alternative is more protective to cultural resources than Alternative 4.

Geographic Distinctions

In this section, alternatives are compared in two ways: (a) by the presence or absence of NAE acres in the geographic areas of interest and potential impacts there and (b) by the potential impacts to archaeological and built-environment resources in these same locations.

Under the Preferred Alternative, the Silurian Valley would be an SAA. Under Alternative 4, this location would be Variance Lands. No NAE acres have been identified in this location (Figure III.9-1); however, that does not mean that no resources important to tribes are present. In each alternative, this location could either be developed or conserved, therefore there is no difference between the alternatives for resources important to tribes.

Under the Preferred Alternative, Hidden Hills area would be a DFA. Under Alternative 4, this location would be a DFA and Variance Lands. Based on previous studies associated with a proposed solar project in this location, the Hidden Hills area is known to be very culturally sensitive because of the presence of a segment of the Salt Song Trail, Route 66, and an NSHT. In addition, there are NAE acres in this location (Figure III.9-1). Both of these alternatives could impact resources important to tribes negatively, therefore there is no difference between the alternatives in this location.

Under the Preferred Alternative, the Notch in the Park would be an FAA. Under Alternative 4, this location would be undesignated. No NAE acres have been identified in this location (Figure III.9-1); however, that does not mean that no resources important to tribes are present. In each alternative, this location could either be developed or conserved, therefore there is no difference between the alternatives for resources important to tribes in this location.

Under the Preferred Alternative, the area north of Tehachapi would be an FAA. Under Alternative 4, this location would be undesignated. The majority of this area consists of NAE acres (Figure III.9-1). In each alternative, this location could either be developed or conserved, therefore there is no difference between the alternatives for resources important to tribes in this location.

Under the Preferred Alternative, the area east of Twentynine Palms would be an FAA. Under Alternative 4, this location would be Variance Lands. There are NAE acres in this location (Figure III.9-1). In each alternative, this location could either be developed or conserved, therefore there is no difference between the alternatives for resources important to tribes in this location.

Under the Preferred Alternative, Owens Lake would be a BLM conservation allocation. Under Alternative 4, this location would be Variance Lands. There are NAE acres in this location (Figure III.9-1), and dry lakes in this part of California are known to be very culturally sensitive. In addition, the Owens River Valley ecoregion subarea has the highest density of cultural resources of all the DRECP subareas (1.76 resources per acre). Therefore, the Preferred Alternative would be more protective of resources important to tribes in this location.

Under both the Preferred Alternative and Alternative 4, Searles Lake between Fort Irwin and China Lake would be undesignated. There are NAE acres in this location (Figure III.9-1). In each alternative this location could either be developed or conserved, therefore there is no difference between the alternatives for resources important to tribes in this location.

Under the Preferred Alternative, the area along U.S. Route 395 north of Edwards Air Force Base would be an SAA. Under Alternative 4, this location would be a BLM conservation allocation. No NAE acres have been identified in this location (Figure III.9-1); however, that does not mean that no resources important to tribes are present. Therefore, Alternative 4 would protect more resources important to tribes in this location than the Preferred Alternative.

IV.9.3.6.7.2 Alternative 4 Compared with Preferred Alternative for the BLM Land Use Plan Amendment

While the number of resources conserved by each kind of BLM land designation, cultural resources CMAs apply to NLCS, ACECs, and NSHT Management Corridors and so the importance of those designations are emphasized here. Table IV.9-265 compares the acres of NAE within ACECs, NLCS lands, NSHT Management Corridors, and DFAs on BLM LUPA lands for the Preferred Alternative and Alternative 4.

Table IV.9-25
Comparison of Preferred Alternative with Alternative 4 for BLM LUPA

NAE Acres	Preferred Alternative	Alternative 4
ACECs	319,952	340,834
NLCS Lands	433,447	355,845
NSHT Management Corridors	162,358	44,452
DFAs on BLM LUPA lands	991	1,029

The following conclusions regarding sensitive resources in NAE areas for BLM LUPA lands can be made:

- The Preferred Alternative contains a greater amount of NAE acres on conservation lands and therefore will be more protective to sensitive resources than Alternative 4.
- Alternative 4 would have a higher potential for impacts to sensitive resources on NAE lands than the Preferred Alternative as it contains more NAE acres within the DFA footprints than Alternative 4.

Table IV.9-26
Comparison of Preferred Alternative with
Alternative 4 for the BLM Land Use Plan Amendment

Land Classification	Preferred Alternative Estimated # of Resources	Alternative 4 Estimated # of Resources
SRMA	68,801	69,315
NLCS	176,810	63,863
Existing and proposed ACEC	84,542	176,813
Wildlife allocation	742	19,393
Land with wilderness characteristics	11,237	0
NSHT Management Corridor	28,437	2,019
BLM LUPA land in DFA footprint	6,855	9,536

Overall, the Preferred Alternative will protect a greater number of NAE acres and cultural resources than Alternative 4. Furthermore, the Preferred Alternative, because of the more restrictive CMAs, would protect a larger number of resources more effectively.

IV.9.3.6.7.3 Alternative 4 Compared with Preferred Alternative for NCCP

The impacts of the NCCP for Alternative 4 are the same as those defined in Section IV.9.3.2.1 for the Plan-wide analysis. As a result, the comparison of Alternative 4 with the Preferred Alternative for the NCCP is the same as described above for Plan-wide DRECP.

IV.9.3.6.7.4 Alternative 4 Compared with Preferred Alternative for the GCP

Table IV.9-27 compares the acres of NAE within the DFA footprints and the reserve design for the Preferred Alternative and Alternative 4.

Table IV.9-27
Comparison of Preferred Alternative with Alternative 4 for GCP Lands

Land Category	Preferred Alternative NAE Acres	Alternative 4 NAE Acres
GCP DFA	1,004	1,197
Conserved	76,654	77,739

The following conclusions regarding sensitive resources in NAE areas for GCP lands can be made:

- Alternative 4 has a higher potential for impacts to sensitive resources on NAE lands than the Preferred Alternative as Alternative 4 contains more acres within the DFA footprints than the Preferred Alternative.
- Alternative 4 would protect more acres of NAE lands than the Preferred Alternative as Alternative 4 contains more NAE acres within the reserve design. However, it is important to note that since the resources present on the NAE acres are not a complete list of places important to tribes, the value of this comparison is uncertain.

Table IV.9-28 compares the number of cultural resources within the DFA footprints and the reserve design for the Preferred Alternative and Alternative 4.

Table IV.9-28
Comparison of Preferred Alternative with Alternative 4 for the GCP

Land Category	Preferred Alternative Estimated # of Resources	Alternative 4 Estimated # of Resources
GCP DFA	5,662	7,863
Conserved	69,920	537,850

Overall, while Alternative 4 would protect more NAE acres and resources, Alternative 4 would also potentially impact more NAE acres and cultural resources than the Preferred Alternative. However, due to the more restrictive CMAs, the Preferred Alternative is more protective of NAE lands and cultural resources than Alternative 4.